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Правове регулювання зберігання інформації у хмарних сховищах

Legal Regulation of Information Storage in Cloud Storage

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Анотація. У статті досліджується правове регулювання використання хмарних технологій для зберігання інформації. Аналізуються нормативно-правові акти України, Європейського Союзу, США, самоврядних організацій, які об'єднують посередників хмарних інформаційних систем, що регулюють відносини у галузі збереження даних і використання хмарних технологій для обробки інформації користувачем. Розглядаються положення щодо визначення з позиції права хмарних обчислень, хмарних сховищ. Аналізуються окремі нормативні акти, які регулюють правові відносини у сфері збереження та використання інформації у хмарних сховищах. Аналізуються основні функції: збереження інформації; створення різнорівневої бази даних, збір відомостей та їх систематизації, зберігання великих даних та їх обробка; обмін інформації; підтримка роботи інших сервісів; збір відомостей та їх розподіл за програмами; економічна функція. Зазначено, що правове регулювання збереження інформації у хмарних сховищах має комплексний характер.

Ключові слова: інформація; відомості; дані; хмарні технології; хмара (хмарна інфраструктура); хмарні обчислення; мережа Інтернет; центр обробки даних.

Abstract. The article examines the legal regulation of using cloud technologies for information storage. The author analyses the legal acts of Ukraine, the European Union, the USA, and self-governing organisations that unite intermediaries of cloud information systems regulating relations in data storage and using cloud technologies for user information processing. The author considers the provisions on the definition of cloud computing and cloud storage from the point of view of law. The author analyses specific regulations governing legal relations in the storage field and the use of information in cloud storage. The main functions are analysed: information storage creation of a multi-level database; collection of data and their systematisation, storage of big data and their processing; information exchange; support of other services; collection of data and their distribution by applications; and economic function. It is noted that the legal regulation of information storage in cloud storage is complex.

Keywords: information; data; cloud technologies; cloud (cloud infrastructure); cloud computing; Internet; data centre.

ВСТУП

Як відомо, розповсюдження технологій хмарних сховищ інформації пояснюється технологічним розвитком суспільства та економічною

вигодою. Хмарне сховище інформації є складним об'єктом, що включає матеріальні та віртуальні компоненти, складові. Складність правового регулювання відносин щодо

зберігання інформації (відомостей та/або даних) у хмарних сховищах полягає у тому, що не усі практичні аспекти і особливості цих правових відносин урегульовані правовими нормами, що характерно для інформаційних технологій в сучасних умовах. Технології хмарних сховищ інформації розвиваються з неймовірною швидкістю. Юридичний понятійно-категоріальний апарат перебуває на стадії формування. Незважаючи на новизну правового регулювання використання хмарних сховищ інформації, класичні теорії застосовуються при формуванні теоретичної юридичної бази, яка може використовуватися в нормативно-правових актах.

Вивчення правового регулювання зберігання інформації у хмарних сховищах з позиції різних наукових підходів є важливим, оскільки результати досліджень можуть бути використані при розгляді та/або використанні інших інформаційних технологій.

Значний вклад у дослідження цієї проблеми внесли такі вчені-юристи і практики: Г. Андрощук, О. Баранов, Ю. Батутін, В. Брижко, О. Кохановська, А. Новицький, В. Лопатін, Р. Скриньковський, Р. Шишка та інші. Реалізація Плану заходів в рамках виконання Угоди про асоціацію між Україною та Європейським Союзом у контексті впровадження інформаційних технологій передбачає проведення теоретико-правових досліджень у цій галузі.

З огляду на викладене вище, *метою статті* є дослідження правового регулювання використання хмарних технологій для зберігання інформації.

РЕЗУЛЬТАТИ ДОСЛІДЖЕННЯ

Так, як зазначає О. Баранов, динамічне та широкое впровадження інформаційних технологій стало причиною появи достатньо великої множини суспільних відносин в різних сегментах суспільного життя, для яких окремі питання правового регулювання стало не зовсім очевидним, що створило окремі суттєві бар'єри на шляху їх застосування [1].

Уклавши договір використання хмарного сховища, у користувача послуги з'являється не фізичний простір, а права на завантаження, вивантаження, редагування інформації. В Україні є низка компаній, які надають хмарні сховища інформації. Наприклад, найкращими

бізнес-структурами, що надають послуги хмарних обчислень, є такі компанії: «Відсотки», «феніксNAP», «Хмарні шляхи», «pCloud», «Веб-служба Amazon (AWS)», Microsoft Azure, Google Cloud Platform, Adobe, VMware, IBM Cloud та інші [2].

Правове регулювання хмарного сховища інформації є системним явищем. Структура правового регулювання показує зв'язки, які породжують регулятивний ефект щодо типової життєвої ситуації. Структура норм правового регулювання дозволяє говорити про неї як про мікросистему в межах багатоскладової системи права (адміністративного, цивільного, інформаційного); відображає об'єктивну логічну основу соціальної норми, є проявом юридичної діяльності, тісно зв'язана з суб'єктивними основами системності права, що включає допустимі та неприпустимі дії щодо відносин з використання хмарних сховищ, охоплює:

- хмарне сховище як програму для електронно-обчислювальних машин (далі – ЕОМ), для якого необхідна правова охорона; у законодавстві можуть закріплюватись вимоги до хмарних сховищ інформації;

- відомості, що завантажуються у хмарне сховище, становлять базу даних із режимом доступу до інформації; хмарне сховище інформації складається з комп'ютерної програми, яка має низку особливих функцій та спеціального апаратного забезпечення – центру обробки даних;

- центр обробки даних забезпечує роботу хмарного сховища – у ньому міститься та обробляється інформація, що є ключовим спеціалізованим технічним комплексом юридичної особи, яка надає такий сервіс.

Відповідно до п. 26 ст. 1 Закону України «Про авторське право і суміжні права» програма для ЕОМ – це представлена в об'єктивній формі сукупність даних та команд, призначених для функціонування ЕОМ та інших комп'ютерних пристроїв з метою отримання певного результату, включаючи підготовчі матеріали, отримані в ході розробки програми для ЕОМ, і аудіовізуальні відображення, що нею породжуються [3].

Хмарне сховище дозволяє зберегти, упорядкувати, структурувати інформацію та створити базу даних. Відповідно до п. 4 ст. 1 зазначеного вище Закону України [3] під базою даних

розуміється сукупність самостійних систематизованих матеріалів. Ці матеріали можуть бути знайдені та оброблені з допомогою ЕОМ.

Одне з найбільш застосовуваних визначень хмарних технологій – це поняття «хмарні обчислення», яке було розроблено Національним інститутом стандартів і технології (далі – НІСТ) у США [4]. НІСТ США є провідною організацією, що займається розробкою та просуванням стандартів у сфері хмарних технологій, взаємодіє з експертами, міжнародними організаціями та іноземними державами. Визначення термінів, запропонованих НІСТ США, є основою для розвитку законодавства у галузі інформаційних технологій у США [4].

Закон України «Про хмарні послуги» (від 17.02.2022 р. № 2075-IX) визначає, що «технологія хмарних обчислень – технологія забезпечення дистанційного доступу на вимогу користувача до хмарної інфраструктури через електронні комунікаційні мережі» [5]. Хмарні обчислення представляють інформаційно-технологічну модель забезпечення повсюдного, ефективного та зручного доступу з використанням мережі Інтернет до загального набору обчислювальних ресурсів (хмари), пристроїв зберігання даних, додатків і сервісів, які можуть бути оперативно надані та/або звільнені від навантаження з мінімальними експлуатаційними витратами.

Значний крок у розвитку правового регулювання використання технології хмарних сховищ інформації є вказівка на використання мережі Інтернет – це надання послуги у мережі Інтернет.

У науковій літературі поняття «хмара» розглядається як обчислювальний ресурс, враховуються його складові – програма для ЕОМ та центр обробки даних. При завантаженні даних у хмарне сховище мається на увазі, що вони будуть у безпеці – це передумова для формування гарантій; мінімізується втручання третіх осіб. Зазначене передбачає цілі використання хмарних сервісів: доступ до програмного забезпечення, розміщення власного програмного забезпечення, баз даних, зберігання файлів, використання хмарного сервісу для розвитку функціоналу електронної пошти тощо.

Хмарні обчислення визначаються як модель надання зручного мережного доступу в режимі «на вимогу» набору обчислювальних

ресурсів певної конфігурації (мереж, сховищ даних), які можуть бути оперативно задіяні та вивільнені при мінімальній взаємодії з постачальником послуги. Це визначення відображає суть даної технології та є основним для багатьох документів та нормативно-правових актів, незважаючи на технічний характер інформаційних технологій. Воно використовується в юридичній науковій літературі країн ЄС та України.

У Федеральній стратегії США щодо хмарних обчислень (англ. *Federal Cloud Computing Strategy*) визначення технології дається загальне – «хмара», яка використовується для різних технологічних рішень та надається зовнішнім постачальником [6]. У ЄС Європейська хмарна стратегія (англ. *The European Cloud Strategy*) не містить визначення хмарного сховища інформації [7].

Європейська комісія створила Європейське хмарне партнерство, яке займається вивченням питань використання хмарних сховищ у Європі, створенням та запуском єдиної хмари для Європи – Європейської хмари, відкритої для науки [7].

У Напрямі 8 «Інформаційно-комунікаційні технології» Національної економічної стратегії на період до 2030 року, затвердженої постановою Кабінету Міністрів України від 03.03.2021 р. № 179, містяться ініціативи щодо розширення використання технології хмарних сховищ інформації у різних сферах життя [8].

У чинних Законах України «Про захист інформацію в інформаційно-комунікаційних системах» [9], «Про хмарні послуги» [5], «Про електронні комунікації» [10], станом на 01.08.2023, не міститься поняття «хмарне сховище».

У зарубіжній науковій літературі увагу приділяють можливості використання обчислювальної потужності сервісу та скорочення власних витрат користувача на обробку та зберігання інформації (відомостей та/або даних).

Хмарне сховище інформації – це сучасна ІТ-інфраструктура, згідно з якою частина програмного забезпечення або обладнання не передається користувачу. Вона розташована на віддаленому центрі обробки даних, доступ до якого забезпечується через мережу Інтернет. Такі віддалені ресурси називаються «хмара».

Хмарні послуги пропонують користувачам можливість використовувати різні комп'ютерні програми без встановлення їх на комп'ютер. Виконуючи операції на власному комп'ютері, користувач отримує результат на віддаленому ресурсі, який забезпечує роботу хмарного сховища інформації.

У науковій літературі розглядають хмарне сховище як модель онлайн-сховища, в якому дані зберігаються на численних розподілених у мережі серверах, що надаються в користування клієнтам. Хмарні сховища надають ІТ-компанії, які на легальній основі пропонують місце у центрі обробки даних для зберігання інформації, але не контролюють її.

Вчені розглядають правовідносини використання хмарного сховища інформації як оренди обчислювальної потужності центру обробки даних, підкреслюючи його значимість, оскільки там зберігається інформація, завантажена користувачем. Так, І. Шевчук та Б. Депутат вважають, що концепція технології хмарного сховища інформації полягає в наданні кінцевим користувачам віддаленого динамічного доступу до послуг, обчислювальних ресурсів та додатків через Інтернет [11].

Водночас А. Досенко розглядає хмарне сховище інформації як базу даних, що діє в режимі онлайн, при регулюванні якої завжди присутні питання транскордонних взаємодій [12].

Дане визначення є одним із найбільш точних, оскільки передає особливості регулювання хмарного сховища як бази даних та враховує можливість наявності іноземного елемента. Використання бази даних у більшості випадків можливе на підставі ліцензійного договору, де зберігання інформації (відомостей та/або даних) є ключовою функцією.

Програма хмарного сховища є системоутворюючою щодо інших сервісів, що мають функції обробки інформації. Хмарні сховища вже настільки розвинені, що поділяються на певні види, які визначені у Законі України «Про хмарні послуги» [5] – приватна, колективна, публічна, гібридна.

Приватні хмарні сховища використовуються юридичними особами та можуть бути створені самотужки (юридична особа купує обладнання, наймає спеціалістів) або під час укладання договору з підприємством, установою організацією, яка надає хмарне сховище.

Інформація може зберігатися у користувача чи у юридичної особи. Такі сховища відрізняються високим рівнем безпеки, але їх використання та створення пов'язане із значними витратами для користувача хмарних технологій.

Колективне хмарне сховище. Сховище створюється для певної спільноти – юридичної особи або суб'єкта певного виду діяльності (наприклад, для поліції). Керувати, володіти та розпоряджатися таким сховищем може одна юридична особа або декілька.

Публічні хмарні сховища доступні для використання будь-якими особами. До таких сховищ належать, наприклад, *Giga Cloud*, *Tetcloud* і інші, які надаються великими ІТ-компаніями. Інформація зберігатиметься у відповідному центрі обробки даних. Більшість таких сховищ надають користувачам безкоштовний стандартний пакет послуг, пов'язаний із використанням хмарного сховища, наприклад, певний обсяг пам'яті сховища, розширений платний пакет послуг.

Умови зберігання інформації, її видачі третім особам залежить від умов договору. Можна сформулювати такі функції хмарного сховища інформації:

- функція збереження інформації. Багато Інтернет-сервісів надають функції конференцв'язку, зберігають записи розмов, лекцій, семінарів, тобто об'єкти авторського права в хмарному сховищі, наприклад, платформа *Zoom*. Автор може використовувати матеріал, створений за допомогою програми *Zoom*, або поділитися з третьою особою;

- створення різномірневої бази даних, збір відомостей та їх систематизація;

- функція зберігання великих даних та їх обробка. У хмарному сховищі може бути створена база даних великого обсягу. Законодавство України та держав ЄС не містить обмежень, пов'язаних з кількістю та обсягом даних у хмарному сховищі;

- функція обміну інформацією. Хмарне сховище може працювати як база даних великого кола користувачів. Власник бази даних може надати доступ до файлів певному чи необмеженому колу осіб. Основним питанням можливість порушення авторських прав на завантажені матеріали. У державах ЄС є служби, які контролюють поширення літературних творів щодо охорони авторських прав. У ст. 11

Директиви Європейського парламенту і Ради (ЄС) 2019/790 від 17.04.2019 «Про авторське право і суміжні права на Єдиному цифровому ринку та про внесення змін до Директив 96/9/ЄС та 2001/29/ЄС» [13] містилися положення про податки за інформацію, онлайн-платформи мають здійснювати виплати правовласникам використання матеріалів чи його частин шляхом укладання ліцензійних угод;

- функція підтримки роботи інших сервісів: збір відомостей та їх розподіл за пов'язаними програмами;

- економічна функція – обчислювальна потужність хмарного сховища може бути предметом угод. Хмарне сховище є обчислювальною потужністю, яку можна купити та продати.

З розвитком правового регулювання відносин щодо використання хмарного сховища інформації особлива увага повинна приділятися:

- дотриманню принципу недоторканності приватного життя, захисту інформації, дотримання заборони на передачу інформації без згоди користувача;

- якості сервісу, що надається; стабільності функціонування хмарного сховища, мінімізації можливих збитків для користувача;

- інтеграції технології у професійну діяльність різних сфер економіки;

- правам користувача та їх захисту;

- наявності іноземного елемента у правовідносинах тощо.

Вимоги до правового регулювання використання хмарного сховища залежать від користувача – фізичної чи юридичної особи, або державного органу, їх потреб, вимог та потреб, пов'язаних із захистом інформації та опрацюванням. Державні органи України використовують цю технологію, що відображено у Порядку передачі, збереження, функціонування та доступу до державних інформаційних ресурсів (публічних електронних реєстрів) та їх резервних копій, розміщених на хмарних ресурсах та/або центрах обробки даних, що розташовані за межами України [14].

Юридична особа, яка володіє хмарним сховищем інформації, є складною за структурою, оскільки включає адміністративний центр і науково-технологічний комплекс, який

займається розробкою та вдосконаленням програмного забезпечення.

Для роботи хмарного сховища юридична особа повинна мати центр обробки даних. Незважаючи на те, що центр обробки даних відіграє важливу роль у роботі хмарного сховища інформації, він входить до складу юридичної особи, оскільки не відповідає ознакам, властивим юридичним особам: не має відокремленого майна; не має організаційної єдності, представляє складову частину юридичної особи; не несе самостійної майнової відповідальності; не може виступати у цивільному обігу.

Ефективність роботи центру обробки даних впливає на наявність клієнтів та на репутацію юридичної особи, але сам центр обробки даних як підрозділ не має можливості приймати рішення щодо діяльності юридичної особи. Юридичні особи у сфері використання інформаційних технологій ведуть транскордонну діяльність, для цього їм необхідно мати декілька центрів обробки даних, які розташовані в різних державах.

Щоб центр обробки даних працював безперебійно, як це потрібно для хмарного сховища інформації, під час створення та встановлення в Україні, він повинен керуватися американським стандартом (основним) *ANSI TIA/EIA-942 «Telecommunications Infrastructure Standard for Data Center»* («Стандарт на телекомунікаційну інфраструктуру центрів обробки даних») [15]. Для роботи центру обробки даних укладається договір з Інтернет-посередником на підключення до Інтернету.

Для надання послуг хмарного сховища інформації потрібно отримати низку ліцензій:

- на розробку, виробництво, розповсюдження шифрувальних (криптографічних) засобів, інформаційних систем, захищених з використанням шифрувальних (криптографічних) засобів, виконання робіт, надання послуг у галузі шифрування інформації, технічне обслуговування шифрувальних (криптографічних) засобів; за винятком випадку, якщо технічне обслуговування шифрувальних (криптографічних) засобів, інформаційних систем, захищених з використанням шифрувальних (криптографічних) засобів, здійснюється для забезпечення власних потреб юридичної особи або фізичної особи-підприємця – дані у хмарному

сховищі захищаються за допомогою шифрування;

– розробку та виробництво засобів захисту конфіденційної інформації – для користувача пріоритетними питаннями є захист конфіденційності інформації;

– діяльність з технічного захисту конфіденційної інформації.

У компаніях країн ЄС для провадження діяльності у галузі захисту інформації шляхом шифрування необхідно отримувати ліцензії. Діяльність із зберігання інформації у хмарному сховищі регламентується рядом нормативно-правових актів. Правові норми, які торкаються прав, обов'язків і гарантій щодо користувача включаються в національне законодавство та документи ЄС. Виділяються права – право на інформацію, на забуття, на рівне надання послуг у мережі Інтернет. Реалізація зазначених прав у мережі Інтернет не позбавляє користувача права на захист, це торкається фізичних осіб, які не узгоджують договір використання, а приєднуються до договору.

ВИСНОВКИ

За невеликий проміжок часу зберігання інформації у хмарних сховищах стало масовим. Їх використовують фізичні і юридичні особи, державні органи. Праве регулювання зберігання інформації у хмарних сховищах знаходяться на стадії розвитку та вдосконалення. У законодавчих актах Європейського Союзу, США, України містяться положення щодо

регулювання зберігання інформації у хмарному сховищі, що формують базу правового регулювання. Багатоаспектність системності правового регулювання хмарного зберігання інформації зумовлена многогранністю засад і проявів, нерозривно пов'язаних між собою.

Зберігання інформації у хмарному сховищі є спеціалізованою цифровою послугою, яка реалізується виключно за допомогою інформаційних технологій, включаючи програму для ЕОМ, що забезпечує роботу центру обробки даних. Центр обробки даних сприймається як програмно-апаратний комплекс. Центр обробки даних є основним елементом правових відносин у контексті правового регулювання зберігання інформації у хмарному сховищі, який знаходиться на визначеній території, яка відноситься до певної юрисдикції.

Використання хмарного сховища дозволяє користувачеві створити об'єкт авторського права – базу даних зі складною структурою. Інформація користувача надає оригінальність базі даних через неповторність: архівні документи, фотографії, зображення, відео файли, наукові розробки тощо. База даних у хмарному сховищі може бути створена на певну тему, тобто представляти спеціально підібрані відомості. Правове регулювання збереження інформації у хмарному сховищі є комплексним, включає дозволи та заборони при використанні програми хмарного сховища, при роботі з інформацією користувачем, яка знаходиться у хмарному сховищі, при зверненні з центром обробки даних.

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Freedom of Expression in Regulating Criminal Acts of Defamation Against the Government and State Institutions

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Abstract. This research aims to analyse the regulation of criminal defamation against the government or state institutions, focusing on freedom of speech. The research method used is the normative research method with a legislative approach and legal concept analysis. This research employs primary legal materials such as laws and judicial decisions and secondary legal materials such as law books, theses, dissertations, journals, and related literature. Data is collected through a literature study, and legal materials are analysed systematically. The research results show that the government has passed Law No 1 of 2023 concerning the Criminal Code, and one of the articles that has sparked public debate is Article 240-241 of the Criminal Code, which deals with insults against the government or state institutions. This article has generated many opinions within the community regarding the criminalisation of individuals who insult or excessively criticise the performance of the government or state institutions. This suggests that society faces limitations in expressing its aspirations and concerns when the state fails to fulfil its duties. However, freedom of expression, including criticism of the government or state institutions, is often treated as a criminal offence of insult under the prevailing law.

Keywords: Freedom of Expression; Defamation Crime; Government and State Institutions

INTRODUCTION

The State of Indonesia is a democratic legal state based on Pancasila and the 1945 Constitution. Every citizen is guaranteed in law and their position in government, and upholds the human rights of every human being, especially Indonesian citizens. The state, the government, is vital in determining the laws that apply to its citizens. However, keep in mind that the freedoms possessed by each individual must still be maintained because it is our human rights as humans. Commencing with the entitlement to life, extending to the freedom to practice religion, the equal treatment under the law, and culminating in the privilege of free speech.

In a democratic country, freedom of speech is a fundamental right that safeguards other human rights. These rights are inherent to every individual, universal, and cannot be taken away by others. This fundamental right serves as a shield for individuals, preserving their self-preservation

and human dignity while also serving as a moral bedrock in the interactions among fellow humans [1].

However, people often criticise the government if they see the frequent demonstrations or actions aimed at state institutions. For example, regular protests are aimed at the government or state institutions regarding people's unrest about specific problems or dissatisfaction with government performance. The existence of demonstrations or actions proves that citizens often criticise the government for the sake of justice that can be achieved by all parties. It is not intended to insult the government or state institutions but to voice the aspirations of the people for a much better change in the future so that the state has the right to determine the rule of law for its citizens but must be fair to all parties, whether it is for the government or state institutions or the community.

Recently, the government passed Law No 1 of 2023 on the Criminal Code, abbreviated as the 'KUHP' with the latest version, which is predicted to be a new step for Indonesia and replace the old Criminal Code inherited from the Dutch Colonial era. The ratification of Law No 1 of 2023 has sparked considerable debate within the community. This debate revolves around criminal offences related to insulting or criticising the government or state institutions excessively, revealing that society faces limitations in expressing its aspirations and concerns when the state fails to fulfil its duties. However, freedom of expression, including criticism of the government or state institutions, is often deemed a criminal offence under the applicable law.

Therefore, the public strongly rejects several controversial articles because they are considered rubber. One of the articles that has become a public debate is Articles 240 and 241 of the Criminal Code regarding insults against the government or state institutions, which are regulated in a particular cluster of the Criminal Code (KUHP) which contains regulations regarding insult crimes outside chapter XVI of the Criminal Code on insults, as for the objects of insults regulated in the special insult section in Law No 1 of 2023 concerning the Criminal Code Article 240 § 1 of the Criminal Code explains that "Every person who publicly, orally or in writing, insults the government or state institutions shall be subject to a maximum imprisonment of one year and six months or a maximum fine of category II". Meanwhile, Article 241 § 1 of the Criminal Code explains that:

"Every person who broadcasts, shows, or attaches writings or pictures, or disseminates through means of information technology containing insults against the government or state institutions, with the intention that the public will know the contents of the insult, shall be subject to imprisonment of up to 3 (three) years or a maximum fine of category IV".

In this case, expressing opinions in public is one of the human rights and the right to freedom of thought that has been protected and guaranteed by the Constitution for every citizen. In general, the formulation is contained in Article 28 of the 1945 Constitution, which states: "freedom of association and assembly, expression of thoughts orally and in writing, and so forth shall be determined by law," and Article 28E § 3, which states:

"every person shall have the right to freedom of association, assembly, and expression."

The law governing freedom of expression and association aims to establish provisions safeguarding the right to express opinions verbally and in writing. In freedom of expression, everyone can access necessary materials to protect their rights to seek, acquire, and communicate information. Nonetheless, the law also contains clauses that forbid any entity, including the government, from attempting to curtail, limit, or nullify this freedom [2].

This is further emphasised by regulations concerning freedom of expression found in Law No 9 of 1998 concerning Freedom of Expression in Public. Article 2 of this law states that "every citizen, individually or in groups, is free to express opinions as a manifestation of the rights and responsibilities of democracy in the life of society, nation, and state."

Additionally, Law No 39 of 1999 concerning Human Rights, Article 23, § 2 states that "everyone has the right to have, issue, and disseminate opinions according to their conscience, orally and/or in writing through print and electronic media, with due regard to religious values, decency, order, public interest, and the integrity of the nation."

Universally, freedom of opinion is regulated in Article 19 of the Universal Declaration of Human Rights (UDHR), which states: "Everyone has the right to freedom of opinion and expression, and this right includes freedom to hold opinions without interference, and to seek, receive, and convey information and opinions in any manner and regardless of frontiers."

Thus, the provision of guarantees for freedom of expression by the international community is also found in the International Covenant on Civil and Political Rights, an international legally binding instrument elaborating on the fundamental rights and freedoms previously stated in the Universal Declaration of Human Rights (UDHR). The International Covenant on Civil and Political Rights ensures that regulating freedom of expression is addressed in Article 19 § 1 of Law No 12 of 2005, which states that "everyone has the right to express opinions without interference from others." Additionally, § 2 of the same article affirms that "everyone has the right to freedom of expression; this right includes the freedom to seek, receive, and impart information and ideas

in any form, regardless of restrictions, whether orally, in writing, in print, through art, or via other media of their choice." With the guarantee of freedom of expression in the International Covenant on Civil and Political Rights, specific obligations and responsibilities are also outlined, including certain restrictions aimed at respecting the rights and reputation of others, as well as safeguarding national security and public order [3].

The essential significance to be gleaned from the intent and purpose of freedom of thought and expression is the individual's freedom to think independently about everything in their surroundings, contemplate various phenomena, and hold onto the outcomes of their studies, expressing them through multiple means [3]. The regulations above outline that the right to freedom of expression is legally protected.

Given the background described above, the author believes the two articles counter the principle of citizens' freedom of expression. This is due to an element of insult, which remains vague. The term "insult" used in the articles lacks a detailed explanation of the actions and words that can be categorised as insulting, making it challenging to distinguish between what constitutes insulting behaviour and what is considered constructive criticism of the government or state institutions. Consequently, there is a lack of clarity regarding the scope of speech or actions falling within the insult category and the specific forms that can be deemed insulting or constructive criticism. Importantly, citizens often utilise criticism to voice their aspirations to the government and state institutions, seeking justice and peace for all parties involved.

Furthermore, both articles state that the purpose of implementing Article 240 and Article 241 of the Criminal Code is to uphold the authority of the government or state institutions. The author contends that this stance contradicts Article 28 and Article 28E, § 3 of the 1945 Constitution of the Republic of Indonesia, Article 2 of Law No 9 of 1998 concerning Freedom of Expression in Public, Article 23 § 2 of Law No 39 of 1999 concerning Human Rights, Article 19 of the Universal Declaration of Human Rights (UDHR), and Article 19 §1 of Law No 12 of 2005 concerning the International Covenant on Civil and Political Rights. These provisions allow citizens to express their opinions openly, including criticising the government. The inclusion of such articles imposes

limitations on the community's ability to express views or criticisms swiftly. Restricting insults is also acknowledged to prevent misinterpretations of community criticism as insults. Consequently, Article 240 and Article 241 of the Criminal Code can be viewed as rules that potentially infringe upon human rights when expressing opinions and offering critiques of government performance.

Therefore, this underscores the importance of safeguarding the right to freedom of speech to maintain the rule of law in a democratic society. The existence of Article 240 and Article 241 of the Criminal Code introduces uncertainty regarding the boundaries within which the public can express their opinions and offer input to the government in the form of criticism. Consequently, these articles possess a solid potential to be used as censorship tools. Freedom of opinion is a fundamental aspect of social life that the state protects and guarantees. Every citizen has the legal right to express their thoughts and ideas, whether directly or through social media platforms. These opinions can take the form of criticism or suggestions concerning government policies or decisions made by state institutions for the betterment of the community. This open exchange of ideas is a vital component of effective governance. The state guarantees and bestows the right to freedom of speech upon its citizens to allow for the broadest possible expression of aspirations and to provide a platform for citizens to contribute constructive criticism and suggestions. This, in turn, assists in enhancing government policies and the functioning of state institutions.

Suppose citizens can potentially face criminal charges for insulting the government or state institutions. In that case, it raises the question of whether a state institution can similarly be subject to criminal charges if it insults its citizens. This is the underlying motivation for the author's examination of the recently enacted Criminal Code. The author perceives that several articles within the code warrant further study. Consequently, based on the above description, the author aims to conduct a comprehensive analysis, focusing on Articles 240 and 241 of the Criminal Code. This analysis will be undertaken in the context of regulations governing freedom of speech, and the study will be titled "Freedom of Expression in Regulating Criminal Acts of Defamation Against the Government and State Institutions."

The primary objective of this study is to explore and analyse the legal provisions concerning criminal defamation against the government or state institutions about the principle of freedom of speech. Furthermore, the study seeks to identify and analyse the limitations placed on acts of insult against the government or state institutions.

Theoretical basis

Legal Certainty Theory. The theory of legal certainty is an inherent characteristic of the law, particularly concerning written legal norms. Law devoid of certainty loses its significance as it can no longer serve as a behavioural guide for all individuals. When examined historically, the discourse on legal certainty dates back to the concept of the separation of powers articulated by Montesquieu. The stability of society is intricately linked to the certainty within the law, as this constitutes the essence of legal certainty. We will delve into various experts' definitions of legal certainty to understand the theory of legal certainty.

Political Theory of Law. The paragraphs below will explain various understandings or definitions of legal politics. Legal politics is the "legal policy or official line (policy) about the law that will be enforced either by making new laws or by replacing old laws to achieve state goals." Thus, the politics of law involves selecting laws to be enacted and deciding which rules should be revoked or not passed, all to achieve state goals, as stated in the Preamble of the 1945 Constitution. From an etymological perspective, 'legal politics' is the English rendition of the Dutch legal expression 'rechtspolitiek,' composed of the words 'recht' and 'politiek' [4].

Definitions put forward by several other experts share substantive similarities with the report presented by the author. In Soedarto's view, legal politics uses state power to create regulations that reflect society's needs and serve the state's goals [5].

Stages of Political Enforcement of Law. Using criminal law to regulate society through legislation is fundamentally a part of the policy-making process. The operationalisation of criminal law policy through punitive measures can be broken down into three stages, as outlined [6]:

1. Legislative Policy Phase (Formulation Stage). This initial stage, often called legislative policy,

focuses on the abstract development of criminal law by lawmakers. Legislators work to identify values relevant to current and future circumstances, shaping them into criminal statutes and regulations aimed at achieving optimal outcomes, primarily centred on justice and effectiveness.

2. Judicial Policy Phase (Application Stage). Referred to as the judicial stage, this phase involves the practical implementation of criminal law by law enforcement authorities, including the police, prosecutors, and courts. During this stage, all law enforcement personnel are responsible for upholding principles of justice and effectiveness.

3. Executive/Administrative Policy Phase (Execution Stage). Also known as the enforcement or implementation stage, this stage centres on the concrete enforcement of criminal law by the agencies responsible for implementation. At this point, the criminal implementing agencies are tasked with enforcing the illegal regulations established by the legislative body, including applying court-determined penalties.

Theory of Legal Protection. Legal protection protects violated human rights, benefiting the community and ensuring full access to legal rights. It involves a set of measures enforced by law enforcement to provide mental and physical security, shielding individuals from interference and threats. It also extends to safeguarding government interests through established regulations. In essence, legal protection embodies the law's role in ensuring security.

Freedom of Opinion. In addition to overseeing freedom of thought, human rights also encompass the right to freedom of expression, enabling the pursuit of truth through information sharing. According to the KBBI, freedom of expression, formed from 'free' and 'expression,' allows individuals to convey their ideas on various topics. As inherent creations of God, humans possess the right to think.

Freedom of expression is a fundamental aspect of human rights, especially in civil and political rights, and part of the first generation of human rights. It is a negative right, requiring the state not to interfere with the freedom of opinion. Essentially, human rights inherently provide individuals with something that should remain untouched by any entity, and freedom of speech is an inborn right guaranteed to every individual from birth, protected by the Constitution.

Defamation. According to the common understanding, defamation attacks someone's honour and reputation, typically making the victim feel ashamed. It's important to note that here, "honour" does not refer to sexual integrity but rather the honour within the scope of a person's reputation. Defamation is one form of criminal act and unlawful behaviour. The term "defamation" comes from the Dutch language, which is "Belediging," and in English, it is "Offence." This term is a deliberate act or action that damages a person's dignity and reputation.

Government. Government, in a broad sense, encompasses all activities carried out by state administrators through state organs that possess the authority to exercise power to achieve specific goals. Meanwhile, in a narrower sense, government refers to activities conducted by the president, ministers, and the lowest bureaucracy [7].

According to [8], the state can also be interpreted as a human organisation or a collective of people under the same government. This government serves as a tool to act in the people's interests, aiming to achieve various objectives of the state organisation, such as welfare, defence, security, order, justice, health, and others. To effectively work towards these goals, the government is endowed with authority, which is subsequently distributed to the instruments of state power, allowing each sector of the state's objectives to be pursued simultaneously. In line with this division of authority, there is a corresponding allocation of state duties to these instruments of state power.

METHODS

The research employed the normative research method, which entailed legal research by examining library materials or secondary legal sources. The focus was on written regulations and legal documents, conducted mainly through library studies and document analysis.

Two approaches were used in this research: the Statute approach and the Legal Concept Analysis Approach (Conceptual Approach). Primary legal materials encompassed laws and regulations, official records or minutes about their formation, and judicial decisions. These legal materials were categorised based on Indonesia's hierarchy of rules and regulations.

The primary legal sources used in this research included:

1. "Constitution of the Republic of Indonesia 1945," published in the State Gazette of the Republic of Indonesia No 75, of 1959.
2. Law of the Republic of Indonesia No 1 of 2023 concerning the Criminal Code (KUHP).
3. Universal Declaration of Human Rights 1948.
4. Law of the Republic of Indonesia No 9 of 1998 on Freedom of Expression in Public.
5. Law of the Republic of Indonesia No 39 of 1999 Concerning Human Rights."

Secondary legal sources used in this research encompassed:

1. Explanations of "the Regulation of the Law of the Republic of Indonesia No 1 of 2023 concerning the Criminal Code."
2. Legal books, including legal theses and dissertations, legal journals, and legal dictionaries.
3. Relevant literature was obtained from the Central Library of Universitas Brawijaya and the Legal Documentation and Information Center of the Faculty of Law, Universitas Brawijaya.
4. Internet articles.

Tertiary legal materials referenced in this research included legal dictionaries written [9] the diverse sources of legal materials, both primary, secondary, and tertiary, employed in this study, the method for collecting legal materials was primarily through library research. The legal material analysis technique used in this research was systematic interpretation, which involved interpreting the law as part of the legislative system by connecting it with other laws.

RESULTS AND DISCUSSION

Legal Regulation of Criminal Offense on Defamation Against the Government. The crime of defamation as delineated in the Penal Code can broadly be demarcated into two distinct categories: public aspersion, stipulated in Chapter XVI of Volume II of the Penal Code, and specialised calumny, codified beyond the confines of Chapter XVI in the same compendium. Public slander primarily revolves around invective targeting an individual's dignity, whereas specialised calumny accentuates the Dignitas of collectivities [6]. This section will scrutinise how criminal jurispru-

dence addresses the malefic act of disparaging authorities and state or governmental establishments.

In a comprehensive context, a criminal misdemeanour can be elucidated as an act or comportment that sullies or diminishes a person's eminence and reputation [10]. Consequently, a criminal misdemeanour can also be expounded as an undertaking that infringes upon an individual's prerogative to safeguard their untarnished nomenclature and eminence. It can be postulated that the intention to vilify either the sovereign or state/government institutions constitutes an act of besmirching the unsullied terminology and eminence of both the sovereign and these institutions, construing them as individual subjects and institutional entities [9].

Discussing criminal law regulation cannot avoid examining legal and illegal policies. Legal policy involves formulating legal rules to create and update legal materials to align with societal needs and enforce existing legal provisions [11]. In contrast, criminal law policy represents an endeavour to craft legislation in criminal law that is appropriate and relevant to current and future circumstances. Within criminal law policy, careful attention to grammar is essential in drafting applicable laws and regulations to prevent the creation of legal norms that may lead to double meanings and ambiguity, ensuring legal certainty.

This section will analyse the criminal law regulation concerning defamation of authorities and state/government institutions based on the Criminal Code, regulations governing freedom of expression, and pertinent Constitutional Court decisions.

Under the current legal framework, insults against the government or state institutions are addressed in Article 240 of the Criminal Code, which states: "Any person who insults the government or a state institution in public, verbally or in writing, shall be subject to a maximum imprisonment of one year and six months or a maximum fine of category II".

Article 241 of the Criminal Code reads: "Every person who broadcasts, shows, or attaches writings or pictures, or disseminates through means of information technology containing insults against the government or state institutions, with the intention that the public will know the contents of the insult, shall be subject to imprisonment

of up to 3 years or a maximum fine of category IV".

The regulation of freedom of speech, as outlined in Articles 240-241 of the Criminal Code, has sparked significant debate regarding the principle of freedom of speech in Indonesia. These articles specifically pertain to cases of insulting the government or state institutions. While their intended purpose is to uphold the authority of the government and state institutions, many argue that these articles may be deemed contradictory to the principle of freedom of expression guaranteed by Article 28 and Article 28 E § 3 of the 1945 Constitution of the Unitary Republic of Indonesia, Article 2 of Law No 9 of 1998 on Freedom of Expression in Public, Law No 39 of 1999 on Human Rights Article 23 § 2, and Article 19 § 1 of Law No 12 of 2005 on the International Covenant on Civil and Political Rights.

Article 28 of the 1945 Constitution guarantees freedom of expression as a fundamental right of every citizen, encompassing the right to express opinions, views, and aspirations without unwarranted intervention. Consequently, when Articles 240 and 241 of the Criminal Code are employed to penalise individuals who criticise or scrutinise the government or state institutions, this is viewed as a restriction inconsistent with the constitutional guarantee of freedom of expression.

The author's argument that these articles contradict the principle of freedom of speech and its regulations is significant in igniting further discussions on the necessity for criminal law reform in Indonesia. This reform may encompass revising or repealing Articles 240-241 of the Criminal Code or providing more precise definitions of the boundaries that can be placed on freedom of speech. The goal is to ensure that the protection of state institutions does not clash with the fundamental rights of citizens to express themselves and voice their opinions. Thus, this debate underscores the importance of maintaining a balance between safeguarding state institutions and upholding the fundamental principles of freedom of speech within the Indonesian legal system.

In the following section, the author will present a comparative statement detailing the elements of defamation regulation against authorities and state/government institutions in the Criminal Code.

The evolution of criminal law regulations concerning insults directed at authorities and

state/government institutions is also influenced by decisions made by the Constitutional Court. As a state institution and a branch of judicial power, the Constitutional Court plays a crucial role in shaping laws and public policies. Since its establishment, the Constitutional Court has reviewed the provisions related to insults in the Criminal Code on multiple occasions, resulting in several noteworthy decisions regarding the constitutionality of these provisions. Examples include Constitutional Court Decision No 013-022/PUU-IV/2006 concerning Insults against the President/Vice President and Constitutional Court Decision No 6/PUU-V/2007 regarding Insults against the Government of Indonesia.

Constitutional Court Decision No 013-022/PUU-IV/2006 declared that Articles 134, 136 bis, and 137 of the Criminal Code conflict with the 1945 Constitution of the Republic of Indonesia and are devoid of legal binding force. In this ruling, the petitioner did not seek a review of Articles 207 and 208 of the Criminal Code. Nevertheless, in the legal reasoning section, the Constitutional Judge interpreted those insults against authorities and state/government institutions (*gestelde macht of openbaar lichaam*) must be predicated on a complaint (*bij klacht*).

While this interpretation transforms Articles 207 and 208 of the Criminal Code into complaint-based offences, it is essential to clarify that this is solely a legal consideration. In practice, several legal scholars argue that the legal concerns within the Constitutional Court Decision carry binding legal weight as an integral part of the decision. This interpretation is based on a rationalisation foundation that addresses the issue of the constitutionality of the scrutinised legal norms. Legal considerations align with the constitutional guidelines per the interpretation of Constitutional Judges.

Constitutional Court Decision No 6/PUU-V/2007 asserts that Articles 154 155 of the Criminal Code oppose the 1945 Constitution. A noteworthy aspect of this decision is that the applicant requested a review of Articles 207 and 208 of the Criminal Code. However, the Constitutional Court determined that these articles were irrelevant to the argument concerning violating the applicant's constitutional rights. Consequently, the applicant was deemed to lack legal standing to challenge these two articles. As a result, the Constitutional Court has not yet examined the consti-

tutionality of Article 207 and Article 208 of the Criminal Code.

Limitation of Criminal Offense of Defamation against the Government or State Institutions. The regulation of criminal offences in Indonesia is governed by the Criminal Code (KUHP), which has remained unchanged since the Dutch colonial era. Many experts argue that the rules in the old Criminal Code are no longer relevant to the dynamic development of Indonesian society today. Furthermore, the current Criminal Code still heavily reflects Western classics and does not incorporate the cultural values of Indonesian culture [12].

For these reasons, the Indonesian government initiated the formulation of the Draft Criminal Code (RKUHP) and planned to enact the regulation in July 2022. Nevertheless, numerous stakeholders consider the ratification of the RKUHP to be rushed, as many articles are still deemed problematic. The ratification of the RKUHP must be carefully formulated, as it entails legal reform that must align with the values ingrained in Indonesian society. Among the articles seen as problematic are those related to insulting the government, as stipulated in Criminal Code Articles 240 and 241.

The formulation of the offence in the article on criminal defamation must be crafted with precision to prevent misinterpretation. This is crucial given its nature, which pertains to the honour of an individual's morality – an abstract concept that can only be assessed subjectively by the victim. Social media has emerged as a prominent platform for Indonesians to communicate, interact, and express themselves. It is not uncommon for criticism conveyed in writing on social media to be interpreted differently by other users, particularly when criticising official Indonesian government institutions. Therefore, a clear distinction between insults and criticism must be drawn, as the boundary between these concepts is relatively thin.

From a linguistic perspective, the theory of dysphemism can be employed to analyse the distinction between insults and criticism. In the theory of dysphemism, an insult is defined as an utterance that imparts a coarse or impolite tone, often taking the form of diatribes, harsh words, and expressions of hatred aimed at causing unpleasant feelings. In contrast, criticism seeks to assess something to facilitate improvement, enhance understanding, and broaden appreciation [13]. It

is essential to underscore that criticism is typically conveyed without harbouring feelings of hatred.

To prevent misinterpretation and the creation of vague legal provisions, providing a more detailed explanation of the precise boundaries distinguishing insults from criticism is imperative. However, it is essential to recognise that establishing absolute limitations for classifying an act as insulting or not insulting within the realm of law is often challenging. Therefore, a practical approach is to organise such acts as complaint offences rather than general offences, as this offers a benchmark that can accommodate this complexity. In the revised Criminal Code dated July 4, 2022, the formulation of insults directed at the president and vice president is explicitly categorised as a complaint offence, as clearly articulated in Article 220. In contrast, the formulation of insults aimed at the government, as outlined in Criminal Code Articles 240 and 241, lacks an explanation of the complaint offence or additional articles providing detailed information about this concept. Including the complaint offence in Criminal Code Articles 240 and 241 is essential, as its omission could threaten the freedom of speech the Indonesian people enjoy if the regulation is enacted.

Public criticism directed at the legislative body can serve as a valuable tool for improving their performance. Such criticism, primarily when conveyed through social media platforms that enable rapid communication, can be instrumental in prompting the legislative body to assess the reasons behind public dissatisfaction with their performance. The constructive criticism offered by the community regarding the legislative body's actions and decisions is integral to sustaining a democratic Indonesian government. Introducing Articles 240 and 241 in the Criminal Code could hurt the nation, potentially eroding democratic principles and steering the country toward an authoritarian state with a centralised government. Without incorporating a complaint offence provision, a clear distinction between criticism and insult may impede public engagement and participation in the democratic process.

This situation raises concerns about potential human rights violations, as it is feared that without the provision of complaint offences, officials in the legislature may readily misuse their authority to report individuals they perceive as

having insulted their dignity. It is crucial to note that Article 19 of the International Declaration of Human Rights states that everyone has the right to hold and express their opinions. Indonesia, too, safeguards the freedom of speech of its citizens, as evidenced by Article 28E § 3 of the 1945 Constitution and Article 23 § 2 of Law No 39 of 1999 concerning Human Rights. These legal provisions establish and protect the freedom of speech for Indonesian citizens. However, Articles 240 and 241 in the Criminal Code threaten this freedom. There is a genuine concern that the government, which should safeguard the rights of its citizens, may transform into a government that opposes criticism and the aspirations of its people.

Considering the insulting article in the Criminal Code, governed by Article 307 on Crimes Against Public Authorities and interpreted as potentially limiting freedom of speech, it transformed Constitutional Court Decision No 013-022/PUU-IV/2006. This decision converted the application of the article into a complaint offence, thereby preventing potential government arbitrariness in levying charges based on the paper. This demonstrates that the government can protect the community's right to express their opinions freely. It grants the community the freedom to voice their opinions without the looming fear of prosecution, as Article 307 of the Criminal Code is treated as a complaint offence. Additionally, it extends legal protection to individuals, ensuring they cannot be arbitrarily insulted by others. Therefore, converting Article 240 and Article 241 of the Criminal Code from general to complaint offences is vital to guarantee security and public order, particularly when expressing criticism and opinions, especially on social media platforms. Prevalent crimes are considered inappropriate for Articles 240 and 241 of the Criminal Code, as these provisions do not pertain to acts that can be reported by anyone who perceives insults against the Legitimate Government.

Articles 240 and 241 of the Criminal Code should be transformed into complaint offences, wherein the aggrieved party will report the alleged insult case to the authorities. A government that actively listens to and welcomes criticism and opinions from its citizens, recognising them as the driving force behind a country's governance, is the type of government desired by the people. It is also a manifestation of democracy. This aligns with the principle of "ubi societas ibi ius," which signifies that where there is society, there is law. The gov-

ernment cannot function without the support of the people. Articles 240 and 241 of the Criminal Code have garnered significant opposition from the public, who will ultimately be subject to this regulation. These two articles will curtail the freedom of individuals to express their aspirations, particularly when criticising the government.

The issue lies in the absence of a clear definition of "insult" and the fact that the offences in both articles are still categorised as general offences. This situation could foster a government that is averse to criticism and lead to an authoritarian or centralised government system. A rigid government system exercises extensive control over its populace, significantly limiting their freedoms. Indonesia, which previously adhered to a democratic system that prioritised its people, could transition into an authoritarian government reminiscent of past eras with the emergence of Articles 240 and 241 of the Criminal Code. Such an authoritarian government would be a nightmare for the people of Indonesia, where individual freedoms are curtailed, and authorities dictate nearly every aspect of life.

Hence, it is essential to amend the provisions on insulting the legitimate government to prevent detrimental consequences, especially for the community. The right to express opinions and voices through criticism is stifled because Articles 240 and 241 of the Criminal Code have broad definitions. There is a lack of legal protection for individuals who convey criticism if that criticism is considered an insult to the legitimate government. Both articles favour the government while harming the public's ability to voice criticism, particularly on social media. Furthermore, the fact that Article 240 and Article 241 of the Criminal Code are categorised as general offences poses a risk to the public when expressing criticism, especially on social media.

CONCLUSIONS

The regulatory framework concerning defamation against authorities and state/government institutions is comprehensively embedded within Indonesian criminal law, predominantly enshrined in the Criminal Code. This offence is regarded as an insult to the reputation and honour of the government or state institutions, implying a significant implication on the socio-legal landscape. The legal provisions addressing insults

aimed at the government and state institutions have undergone a series of reforms, an endeavour undertaken to replace the archaic Criminal Code inherited from the Dutch Colonial era with contemporary legislation. Notably, Law No 1 of 2023, which pertains to the Criminal Code, has engendered considerable debate, focusing on the contentious aspects of Articles 240 and 241.

The core contention revolves around these provisions potentially conflicting with the cherished principle of freedom of speech, even though citizens are ostensibly protected under the venerable 1945 Constitution of Indonesia, bolstered by supplementary regulations on freedom of speech. The amendments to the Criminal Code, specifically within the context of Articles 240 and 241, ushered in a more severe punitive regime for such transgressions, serving as a central pivot in discussions concerning the evolving landscape of defamation law in Indonesia.

Despite these legal developments, decisions from the Constitutional Court (MK) have emerged as pivotal in shaping criminal law concerning defamation, elevating their significance to the forefront of legal discourse. Although some articles within the Criminal Code have faced constitutional challenges and have been deemed unconstitutional, Articles 207 and 208, governing insults against authorities and state/government institutions, have remained untested on the crucible of constitutionality, further fueling debates regarding their compatibility with the cherished principle of freedom of expression enshrined within the Indonesian Constitution.

These articles, replete with legal and sociopolitical implications, have prompted profound dialogues regarding the delicate equilibrium between safeguarding the honour and integrity of state institutions and upholding citizens' inalienable rights to articulate their opinions on the other freely. Indeed, a compelling argument emerges for Indonesia's imperative need for comprehensive criminal law reform. Such an endeavour could encompass a reassessment of the relevance and necessity of Articles 240 and 241 within the Criminal Code, potentially advocating for their revision, repeal, or, at the very least, the introduction of enhanced clarity in delineating the parameters of freedom of expression.

In conclusion, the introduction of Articles 240 and 241 within the Criminal Code, addressing the criminal offence of insulting the government or state institutions, has incited widespread contro-

versy and warrants meticulous reconsideration. Although aimed at protecting the honour and reputation of state entities, these provisions harbour the potential to infringe upon the hallowed ground of freedom of speech, raising concerns about the possible perpetuation of authoritarian tendencies.

It is essential to underscore that public criticism directed at the government and legislative bodies plays an integral role in preserving the tenets of democracy. Therefore, there exists an imperative to demarcate a clear and discernible boundary between malicious insults and constructive criticism. Such a differentiation is indispensable to uphold the cherished principles of freedom of speech.

One viable solution is transforming Articles 240 and 241 into complaint-based offences, a nuanced approach ensuring genuine defamation is reported by the aggrieved parties while safeguarding citizens' unfettered rights to express their criticism securely and protected. By adopting this approach, the protection of freedom of speech can be robustly maintained in alignment with the principles of human rights as embodied in international legal frameworks and the Indonesian Constitution, thereby reconciling the paramount need to preserve the honour and integrity of state institutions with the imperative of safeguarding citizens' essential rights.

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Implementation of Article 18 of the Consumer Protection Law in Express Delivery Companies in Denpasar City, Indonesia

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Abstract. This study aims to investigate the implementation of Article 18 of the Consumer Protection Act on express delivery companies in Denpasar City. The research employs a statutory and factual approach as part of empirical legal research. Data collection involved interviews with relevant parties from express delivery companies and the use of secondary data from legal literature and regulations related to the research topic. The data was processed qualitatively to gain an in-depth understanding of the issues under investigation. The results revealed that Article 18 had not been fully implemented by express delivery companies in Denpasar City, particularly concerning certain aspects such as § 1 (a, c, e) and § 2. This non-compliance is attributed to companies prioritising efficiency and profit over legal compliance and inadequate supervision of the agreement letter for goods transportation. Comprehensive law enforcement must cover all aspects regulated in the legislation, ensuring that stipulated regulations are followed appropriately by the law. Additionally, formulating relevant public policies is essential to encompass all aspects of the code, including the incorporation of provisions in Appendix II of Minister of Transportation Regulation No 60 of 2019 concerning Minimum Service Standards for Special Goods Transport, as well as Articles 56, 71 (§ 1), 80 (§ 4) of the same regulation.

Keywords: Consumer Protection Law; Express Delivery Company; Legal Inconsistency; Legal Implementation; Public Policy.

INTRODUCTION

The research on the implementation of Article 18 of the Consumer Protection Law in express delivery companies in Denpasar City is motivated by the gap between the nature of the standard clauses included in the legal agreement and the restrictions on their inclusion stipulated in Law No 8 of 1999 concerning Consumer Protection (from now on abbreviated as UUPK) Article 18.

The nature of a standard agreement that is freely made unilaterally by the entrepreneur based on their wishes, then offered to each consumer, is efficiency [1]. In the trade of goods or services, the entrepreneur has to sell goods or services quickly to many consumers simultaneously, so they will not have time to organise an agreement with clauses as desired by consumers one by one.

In terms of efficiency, trade does run very practically and quickly through standard agreements that business actors have prepared. However,

there are agreement clauses that are prohibited from being included. These prohibited clauses are called exoneration clauses, such as, for example, clauses that state the transfer of responsibility, state that they are not responsible, goods cannot be returned, and so on. It becomes urgent to be researched in the community because the entrepreneur makes this standard agreement unilaterally with the "take it or leave it" principle. On the other hand, the interests of consumers related to the goods or services offered by business actors also need to be protected. In society, entrepreneurs must want to seek maximum profit, but on the other hand, they must still pay attention to their obligations and responsibilities. Accepting a standard agreement by consumers does not mean that the contract can consistently be implemented by the wishes of the business actor [2]. For this reason, it is necessary to examine the implementation of the prohibition of in-

cluding exoneration clauses in standard agreements in the community.

Express delivery companies in Denpasar City are the focus of research because they are one of the businesses that trade in transportation services by applying standard agreements, organising express or speedy delivery of goods, small proof of delivery with small written clauses, understanding of entrepreneurs related to exoneration clauses associated with the desire to find a safe position, always win in the agreement, and government supervision that tends to be weak, indicating a violation of Article 18 of the UUPK.

The selection of only companies that organise express delivery makes this research rational and can be appropriately managed so that it can be completed on time. This research was carried out by a lecturer in transportation law and a lecturer in consumer protection law so that academically competent individuals contribute to resolving legal problems, especially related to implementing Article 18 of the UUPK.

The research on the Implementation of Article 18 of the Consumer Protection Law on Express Delivery Companies in Denpasar City focuses on two problem formulations as follows:

1. How is the implementation of Article 18 of the Consumer Protection Law on express delivery companies in Denpasar City?
2. How can public policy formulation be shaped by implementing Article 18 of the Consumer Protection Law on express delivery companies in Denpasar City?

Theoretical Basis

The Position of the Exoneration Clause in a Standard Agreement. An agreement is "a legal relationship between two people or parties based on which one party has the right to demand something from the other party, and the other party is obliged to fulfil the demand" [3]. According to [4], a standard agreement can be accepted based on the fiction of willingness and trust that the parties bind themselves to the deal. If the debtor receives the agreement document, he voluntarily agrees to the agreement's contents. Asser Rutten stated that every person who signs a contract is responsible for the contents and what they mark, so if someone signs a standard deal, it can be interpreted as knowing and agreeing to the agreement [5]. Hondius argues that definitive agree-

ments have binding force based on the prevailing customs in society and trade traffic [6].

An economic approach to the law can be applied by examining one of the conditions for the validity of an agreement according to Article 1320 of the Civil Code, which is the achievement of a contract. The deal begins with an offer and is accepted by acceptance, which ideally can give birth to a consensus agreement. However, in standard contracts, there is a "take it or leave it" principle that causes a disparity in bargaining positions, although, on the other hand, it is recognised as providing economic and practical value. In this case, the agreement is one of the essences of the contract's validity, which cannot be contested. This is where the economic approach to law lies in maintaining the existence of law as a tool that can retain/motivate efficiency. Here, the role and function of law must be accurate and not eliminated, namely by maintaining bargaining to create value, efficiency, and usability of contracts. A contract is said to have value if it can be enforced according to the law. It is efficient if the agreement can unite the equation of will and purpose through practical interpretation and is effective if it can function according to its purpose and designation [7].

The legal relationship of the agreement between the carrier and the consumer regarding the goods it sends is regulated in the eleventh section on public transportation companies' obligations, rights, and responsibilities, Law No 22 of 2009 concerning Road Traffic and Transportation, Articles 186-197. Meanwhile, the limitations of the exoneration clause are regulated in Law No 8 of 1999 concerning Consumer Protection, Article 18, which stipulates that:

- 1) Business actors, in offering goods and/or services intended for trade, are prohibited from making or including standard clauses in every document and/or agreement if they:
 - a) State the transfer of responsibility of the business actor;
 - b) State that business actors have the right to refuse the return of goods purchased by consumers;
 - c) State that business actors have the right to refuse the return of money paid for goods and/or services purchased by consumers;
 - d) State the granting of power from consumers to business actors, either directly or indirectly, to

take all unilateral actions related to goods purchased by consumers in instalments;

e) Regulate the matter of proof for the loss of usefulness of goods or utilisation of services purchased by consumers;

f) Give the right to business actors to reduce the benefits of services or reduce the assets of consumers who are the object of the sale and purchase of services;

g) State that consumers are subject to regulations in the form of new rules, additions, continuation, and/or further changes made unilaterally by business actors during the period when consumers utilise the services they buy;

h) State that consumers authorise business actors to encumber mortgage rights, liens, or security rights against goods purchased by consumers in instalments.

2) Business actors are prohibited from including standard clauses whose location or form is challenging to see, cannot be read clearly, or whose disclosure is difficult to understand.

3) Every standard clause stipulated by business actors in documents or agreements that fulfil the provisions referred to in §§ 1, 2 shall be declared null and void.

4) Business actors must adjust standard clauses contradicting this law."

The law is said to be social engineering/social control/as a tool [8] so that with Article 18 of the UUPK and the natural element/must be considered to exist, it can balance the position of consumers (fair) on the one hand and efficiency and benefits on the other hand can be realised.

METHODS

This research used empirical legal research to examine the discrepancy between legal regulations (Article 18 of the UUPK) and standard agreements in express delivery companies in Denpasar City [9]. The types of approaches used were the statutory approach and the factual approach. This research was descriptive and analytical. Both primary data and secondary data were utilised.

Primary data was obtained through interviews with express delivery companies in Denpasar City. On the other hand, secondary data was collected by gathering legal theories, philosophies,

and related laws and regulations. The data was processed qualitatively.

RESULTS AND DISCUSSION

Based on research conducted on eleven express delivery companies in Denpasar City, the following results were obtained:

Table 1 – Data analysis of the implementation of Article 18 of the UUPK in eleven express delivery companies in Denpasar City

Indicators of Article 18 of UUPK (Prohibited Clauses)	No of Business Actors Implementing	% of Sample Violations
Stating the transfer of responsibility of business actors to consumers or other parties (insurance)	10	90.91
Stating that the business actor has the right to refuse the return of money paid for services purchased by consumers	10	90.91
Stipulate the matter of proof for the loss of usefulness of goods or utilisation of services purchased by consumers	11	100
Stating that consumers are subject to regulations in the form of new rules, additions, continuation and/or further changes made unilaterally by business actors during the period when consumers utilise the services they buy	0	0
Business actors are prohibited	11	100

Indicators of Article 18 of UUPK (Prohibited Clauses)	No of Business Actors Implementing	% of Sample Violations
from including standard clauses whose location or shape is challenging to see, cannot be read clearly, or whose disclosure is difficult to understand.		

The assessment of the research results on implementing Article 18 of the Consumer Protection Law in express delivery companies in Denpasar City begins by examining the indicators used to test for gaps or discrepancies between regulations and their implementation. These indicators are as follows:

Stating the transfer of responsibility of business actors to consumers or other parties (insurance). Among the eleven express delivery companies studied, ten only take responsibility for damage or loss of goods by determining the maximum limit of liability, which is ten times the cost of transportation. Additionally, some companies limit the total compensation to a nominal amount ranging from one hundred thousand to one million. Moreover, these companies compensate for losses solely through insurance claims, even though insuring the shipment should be the responsibility of the express delivery company. This situation leads to a transfer of commitment from the delivery company to the sender/consumer, contrary to the provision in Article 189 of Law No 22 of 2009 concerning Road Traffic and Transportation, which mandates that "Public Transportation Companies shall insure their liability."

The transfer of responsibility of business actors to consumers or other parties (insurance) is influenced by the lack of legal awareness among express delivery companies. These companies prioritise profit over implementing regulations that could increase financing and potentially reduce profits. Such practices can be detrimental to consumers on a larger scale, necessitating a direct supervision system from the government, particularly from the Transportation Agency. The Transportation Agency, being responsible for overseeing transportation implementation,

should require express delivery companies to report on their transportation practices, including attaching standard clauses to the agency for analysis. This way, problematic common provisions can be monitored and prohibited from being enforced.

Stating that business actors can refuse to return money paid for consumer services. Two scenarios were observed in the practice of shipping goods regarding the return of money paid for services purchased by consumers:

- If the shipper cancels the agreement to transport the goods before the transportation process takes place;
- When the transportation company provides a money-back guarantee, and the goods still arrive at their destination, the consumer is entitled to a refund if a delivery delay exceeds the agreed time estimate.

Refunds paid by the sender as transportation costs incurred due to the cancellation of the agreement are only implemented by one express delivery company out of the eleven companies studied. This particular company provides a provision for returning only 90% of the total shipping costs paid, citing a company policy that sets the price of cancelling the agreement at 10% of the total transportation costs. Furthermore, the company refuses to refund packaging costs and sets a maximum cancellation time of three hours from the agreement. Additionally, only one of the eleven express delivery companies studied offers a money-back guarantee against late delivery. Still, this guarantee is provided only if the delay is proven to be the fault of the express delivery company. On the other hand, nine express delivery companies outrightly refuse to refund money in the event of cancellation by creating a clause prohibiting the cancellation of the agreed transportation agreement.

In principle, the agreement cannot be unilaterally cancelled by the sender/consumer. However, in the context of the regulation of Article 18 § 1 letter c of the Consumer Protection Law, this provision is intended to protect consumers from standard agreements set unilaterally by business actors. In practice, a legal agreement may be cancelled when the shipper carefully reads the provisions in the contract and does not agree to one or more of these provisions. However, this careful reading often does not happen at the time of the agreement, as the shipper generally only in-

quires about the price/cost of transportation and the estimated delivery time. It is only after agreeing to the service that the shipper is presented with a delivery slip to be signed, and it is at this point the shipper starts reading all the clauses and provisions of the standard agreement.

Article 18 § 1, letter c of the Consumer Protection Law can also be interpreted as protection for consumers who expect the promised delivery service. When the sender agrees to use the services of an express delivery company, the sender hopes that the standard clauses made by the express delivery company will be implemented as promised. Therefore, if there is a delay or the delivery does not align with the promise, there should be a guarantee for the expected service, such as the return of transportation costs. The warranty of goods or services traded is required under Article 7 letter e of the Consumer Protection Law.

The fact that nine express delivery companies refuse to refund the money paid for the services purchased by consumers indicates a lack of legal awareness related to consumer protection. These companies are unwilling to allow consumers to cancel the agreement or provide an equal position in standard contracts. Consequently, the delivery companies can always have the upper hand, while consumers are consistently disadvantaged since the legal deal is created unilaterally.

The Regulation of the Minister of Transportation of the Republic of Indonesia No PM 60 of 2019 concerning the Implementation of Freight Transport by Motorized Vehicles on the Road stipulates in Article 58 § 1 letter b: "refund all transportation costs that have been paid by the owner of the goods in the event of the cancellation of the delivery of goods." Therefore, the practice of returning only 90% of the sender/consumer's money, as conducted by one of the sample companies studied, also violates the provisions of the applicable laws and regulations.

Regulating the proof of the loss of usefulness of goods or utilisation of services purchased by consumers. All the express delivery companies in Denpasar City that were studied stated that they were not responsible for any changes or loss of the technical usefulness of the goods or any malfunctioning of the goods after they were purchased and delivered. For example, the companies refused to take responsibility if handphones, televisions, or laptops were damaged or malfunctioning after delivery.

They claimed that such damages could have occurred due to negligence in organising the delivery, hidden defects in the goods, or even deliberate intent of the seller to send goods of poor quality. To prove the loss of usefulness of goods purchased by consumers, all the companies required consumers to provide evidence in the form of photos of the goods before packing or pictures of the goods with poor packaging upon arrival. Additionally, they demanded photos or videos of the goods when they were undamaged and proof of shipping payment. Conversely, the express delivery companies would also try to prove they were not guilty or negligent in handling the goods.

This practice contradicts the principle of proof in transportation, as stated in Article 18 § 1 letter e of the Consumer Protection Law. The law prohibits express delivery companies from imposing standard clauses that shift the burden of proof to the consumer/sender to demonstrate negligence in the delivery organisation. The responsibility for the delivery organisation lies with the express delivery company, and the company must prove that the fault does not rest with them, not for the consumer/sender to prove it. This violation occurred because the eleven express delivery companies studied applied the principle of proof commonly used in civil procedure law, which dictates that whoever makes a claim bears the burden of proving the argument. However, the Consumer Protection Law does not apply this principle, as consumers may not have the means to prove negligence in organising delivery. Therefore, the law establishes the principle of reverse proof, in which the shipping company must prove their innocence. This principle is expressly regulated in Article 28 of the Consumer Protection Law: "Proof of the existence or absence of elements of fault in a compensation claim is the burden and responsibility of the business actor."

Declare that consumers are subject to regulations in the form of new rules, additions, continuations, and/or further changes made unilaterally by business actors when consumers utilise the services they buy. All the express delivery companies in Denpasar City that were studied declared that the company has the right to change the terms of service and delivery conditions at any time, including the cost and estimated time of delivery of goods. However, they claimed that such changes would be accompanied by socialisation on the official website and communicated in advance to consumers. They informed consumers that new

rates or terms and conditions would be applied, which might differ from the provisions contained in the existing standard agreement.

Business actors are prohibited from including standard clauses whose location or shape is challenging to see, cannot be read clearly, or whose disclosure is difficult to understand. The research on all express delivery companies in Denpasar City showed that they all included standard clauses in their agreements with relatively small letters and single spacing. Moreover, certain parts of these standard clauses were challenging to read or comprehend. This practice was explained as an effort to efficiently use paper and reduce the printing cost of legal agreements. However, despite the express delivery companies' willingness to address consumer inquiries and provide clear explanations, this approach still violates the provisions of Article 18 § 2 of the Consumer Protection Law.

The Consumer Protection Law focuses explicitly on regulating the prohibition of small forms of written transportation agreements to protect consumers, who in this context are shippers of goods, from the potentially unfavourable terms imposed by express delivery companies acting unilaterally. According to Article 5 Letter A of the Consumer Protection Law, the consumer must read and understand information instructions and procedures related to using or utilising goods and/or services for safety and security. This underscores the need for transparent and easily understandable agreements.

Including standard clauses with difficult-to-read locations or forms can discourage consumers/senders from thoroughly reading and understanding the agreements they are agreeing to. Although the research found that all the samples violated this rule, it does not render the regulation ineffective; instead, it emphasises the need to change the habits of these express delivery companies. In line with this, Roscoe Pound's theory of law as a means of reforming society suggests that regulation can function as a social engineering tool.

To ensure effective implementation of this regulation, a robust supervision system by the government, particularly the Directorate General of Land Transportation, is crucial. The Directorate General of Land Transportation should establish public policies or legal rules governing the supervision of standard agreements made by shipping companies in terms of substance and form.

Currently, the Regulation of the Minister of Transportation of the Republic of Indonesia No PM 60 of 2019 concerning the Implementation of Goods Transport by Motorized Vehicles on the Road (Permenhub No. 60 Th. 2019) addresses various aspects of goods transportation but has not specifically addressed the supervision of standard agreements made by shipping companies in terms of substance and form. Incorporating such regulations can further enhance consumer protection and ensure more transparent business practices in the express delivery industry.

In Chapter VII of Minister of Transportation Regulation No. 60 of 2019, which deals with the Management Information System for the Transport of Goods by Motorized Vehicles, Article 68 outlines the following provisions:

1. The Director General of Transportation shall organise the management information system for transporting goods by motor vehicle.
2. The information system, as mentioned in §1, involves the collection and processing of licensing data based on:
 - a) Reports from Public Transport Companies on the realisation of Freight Transport every month;
 - b) Results of control and supervision;
 - c) Results of performance assessment of Public Transport Companies.
3. The information system, specifically focusing on the reports from Public Transport Companies on the realisation of monthly Freight Transport (as stated in § 2, letter a), includes the following components:
 - a) Database of Motor Vehicles used for Freight Transport;
 - b) Information system for licensing of Goods Transportation;
 - c) Driver performance monitoring information system capable of recording vehicle speed and driver behaviour during vehicle operation;
 - d) Cargo documents for Goods Transportation;
 - e) Driver database;
 - f) Results of control and supervision;
 - g) Results of performance assessment and Safety Management System;
 - h) Registration and data collection of Goods Transportation by Vehicle.

4. The information system concerning the results of control and supervision (as described in § 2, letter b) comprises:

a) Violation reports from Officers at the Motorised Vehicle Weighing Implementation Unit; Investigators of Civil Servants in the field of Road Traffic and Transportation; Investigators of the Indonesian National Police; and The public.

b) The Directorate General organises the results of monitoring and evaluation.

5. The information system regarding the results of the performance assessment of Public Transportation Companies (as mentioned in § 2, letter c) consists of:

a) Effects of Safety Management System audits;

b) Results of monitoring and evaluation organised by the Directorate General.

These provisions lay the groundwork for an organised and comprehensive management information system, which plays a crucial role in collecting, processing, and evaluating data on transporting goods by motor vehicles. The system ensures effective control, supervision, and assessment, promoting safety and efficiency in transporting goods.

Article 1, § 21 of Minister of Transportation Regulation No. 60 of 2019 defines the Director General as the individual responsible for traffic and road transportation facilities and infrastructure, specifically within the Directorate General of Land Transportation.

According to Article 68, § 3, Letter d of the same regulation, freight transportation cargo documents are among the components that fall under the supervision of the Director General of Land Transportation. Further details about these documents are outlined in Article 52 of the Ministerial Regulation, which states the following:

1. Transportation of Goods by Public Motorized Vehicles must be equipped with documents.

2. The required documents, as mentioned in §1, include a Goods Load Letter; a Letter of agreement for transporting goods.

The letter of agreement for the transportation of goods, drafted with standard clauses by the shipping company, is considered a part of the documents subject to supervision by the Director General of Land Transportation. However, it is noteworthy that the regulations in Appendix II of Minister of Transportation Regulation No. 60 of

2019, which cover Minimum Service Standards for Special Goods Transport, only explicitly mention the "Goods Load Letter" as a mandatory document. Although this load letter serves as proof of transportation agreement and goods acceptance, it does not explicitly regulate the letter of understanding for the transportation of goods, which should be an integral part of the goods load letter, as stipulated in Article 52, § 2 of the regulation. As a result, it can be argued that the letter of agreement for the transportation of goods has not been formally recognised as an object of supervision.

Article 56 of Minister of Transportation Regulation No. 60 of 2019 does address the letter of agreement for the transportation of goods and outlines the following provisions:

1. The letter of agreement for the transportation of goods, as mentioned in Article 52, § 2, Letter b, should be prepared by the Public Transportation Company.

2. The letter of agreement for the transportation of goods, as described in § 1, may be in the form of legal proof of payment between the Public Transportation Company and the owner of the goods.

3. The letter of agreement for the transportation of goods, as stated in § 1, should contain at least the following information:

a) The rights and obligations of the Public Transportation Company and the owner of the goods;

b) The agreed tariff;

c) Type and quantity of goods;

d) Origin and destination of the goods;

e) Type and capacity of the vehicle;

f) Ownership of the goods; and

g) Indemnity to the goods owner and/or insurance premiums for the goods transported.

The existing regulation concerning the agreement for the transportation of goods addresses the substance that must be included or regulated in the contract. However, it has not specifically addressed the aspect of its location or form, which might be challenging to see, cannot be read clearly, or may be hard to understand, as stipulated in Article 18, §2 of the Consumer Protection Law. It is necessary to develop a public policy that includes an additional paragraph, namely §4, to be added to Article 56 of Minister of Transportation Regulation No. 60 of 2019.

Furthermore, another area for public policy enhancement involves additional provisions in Article 71, § 1 of Minister of Transportation Regulation No 56 of 2019, which states the following:

1. Drivers and/or Public Transportation Companies must comply with the provisions regarding:

- a) Loading procedures;
- b) Carrying capacity;
- c) Vehicle dimensions;
- d) Road class.

By adding the letter "e" to this article, the substance regarding the minimum standard of cargo transportation documents will be regulated in the sub-section, addressing its positioning or format, which must not be difficult to see or read clearly, or its disclosure should not be hard to understand. Additionally, another sub-section will regulate the substance of mandatory agreements, such as the arrangement in Article 56, § 3 of Transportation Ministry Regulation No. 60 of 2019. Consequently, the examination of cargo transportation documents stipulated in Article 72, point "d," will include the cargo manifest and the analysis of cargo transportation agreements, per the scope of documents in Article 52, § 2 of Transportation Ministry Regulation No 60 of 2019.

The final material in the public policy design related to this matter refers to the addition of Article 80, § 4, which will be inserted between points "g" and "h." Thus, this proposed public policy will become point "h," while the current content under point "h" will become the subsequent regulation under point "i," and so on until point "k." This public policy material regulates severe violations referred to in Article 80, § 1, point "c," which includes: "Failing to comply with the Minimum Standards of Cargo Transportation Documents that have been determined." This severe violation nullifies the standardised agreement made by shipping companies, as stipulated in Article 18, §3 of the Consumer Protection Law.

The research has yielded the following outputs in the formulation of public policies related to:

1. The addition of a supervision component in Appendix II of Minister of Transportation Regulation No. 60 of 2019 concerning Minimum Service Standards for Special Goods Transportation after point 14. The added part states that "a letter of

agreement for the transportation of goods that guarantees the validity of the transportation agreement as the basis for the delivery must be available and by the minimum standards for freight transportation documents that have been determined."

2. Addition of one paragraph, namely § 4, to Article 56 of Minister of Transportation Regulation No 60 of 2019. The added paragraph stipulates, "The letter of agreement for the transportation of goods as referred to in §1 is prohibited from being included in a location or form that is difficult to see or cannot be read clearly, or whose disclosure is difficult to understand." This regulation implements Article 18, §2 of the Consumer Protection Law in land transportation.

3. Addition of regulations to Article 71, § 1 of Minister of Transportation Regulation No. 56 of 2019, explicitly introducing letter "e" with the provisions: "minimum standards of freight transportation documents." As a result, the entire Article 71, §1 of Minister of Transportation Regulation No. 56 of 2019 will stipulate that "Drivers and/or Public Transportation Companies shall comply with the provisions regarding:

- a) loading procedures;
- b) carrying capacity;
- c) vehicle dimensions;
- d) road class;
- e) minimum standard of goods transportation documents."

4. Addition of Article 80, § 4 to Minister of Transportation Regulation No 56 of 2019, inserted between letters "g" and "h." This public policy material addresses serious violations, particularly those referred to in Article 80, § 1, letter "c," which includes: "Not complying with the provisions of the Minimum Standard of Goods Transportation Documents that have been determined." This severe violation results in the null and void of the standard agreement made by the shipping company, as stipulated in Article 18, § 3 of the Consumer Protection Law.

This draft public policy should be established without changing existing laws and regulations or introducing new ones. Doing so ensures efficiency in terms of time and costs required by the state in forming rules. The proposed public policy can be better understood through Table 2.

Table 2 – Proposed Public Policy

Proposed Rule Additions	Initial Determination	Added to be	Basis of Change
Annex II of Minister of Transportation Regulation No 60 of 2019 concerning Minimum Service Standards for Special Goods Transportation	Only regulates in point 14) regarding the letter of cargo does not yet regulate the letter of agreement for the transportation of goods.	Point 15): "A letter of agreement for the transportation of goods that guarantees the validity of the transportation agreement as the basis for organising shipments must be available and by the minimum standards for freight transportation documents that have been determined".	The components contained in Annex II are guidelines for supervisory officers in directly supervising transportation operations.
Article 56 of Minister of Transportation Regulation No 60 of 2019	Article 56 of Minister of Transportation Regulation No 60 of 2019 stipulates that: 1. The letter of agreement for the transportation of goods, as referred to in Article 52 §2 letter b, shall be made by the Public Transportation Company. 2. The letter of agreement for the transportation of goods, as referred to in § 1 may be in the form of legal proof of payment between the Public Transportation Company transporting the goods and the owner of the goods. 3. The letter of agreement for the transportation of goods, as referred to in § 1 shall at least contain the following: a) at the rights and obligations of the Public Transportation Company and the owner of the goods; b) the agreed tariff; c) the type and quantity of goods; d) origin and destination of the goods; e) type and capacity of the vehicle; f) ownership of the goods; g) indemnification of the owner of the goods and/or insurance premiums for the goods being transported.	§4 to be added to article 56 of Minister of Transportation Regulation No 60 of 2019, which stipulates that "The letter of agreement for the transportation of goods as referred to in § 1 is prohibited from being included in a location or form that is difficult to see or cannot be read clearly, or whose disclosure is difficult to understand."	As an implementing regulation of Article 18 § 2 of the Consumer Protection Law
Article 71 § 1 of Minister of Transportation Regulation No 56 of 2019	Article 71 (1): Drivers and/or Public Transportation Companies shall comply with the provisions regarding:	Added letter "e": minimum standards for freight transportation documents.	To be used as a guideline in supervision, one of the components must be directly supervised.

Proposed Rule Additions	Initial Determination	Added to be	Basis of Change
	a) loading procedures; b) carrying capacity; c) vehicle dimensions; d) road class.		
Article 80 § 4 of Minister of Transportation Regulation No 56 of 2019	4) Serious violations, as referred to in Article § 1 letter "c" include: a) transporting cargo with a Goods Car motor vehicle that exceeds the dimensions and carrying capacity of the vehicle; b) not implementing the Safety Management System; c) using multiple surveillance cards; d) operating a Goods Car vehicle for unique Goods Transportation beyond a predetermined track; e) failing to display the designated Goods Car vehicle sign; f) falsifying Goods Transportation documents; g) operating a Goods Car vehicle not equipped with Goods Transportation documents; h) operating a Goods Car vehicle whose license has expired; i) committing negligence in the operation of a Goods Car vehicle resulting in an accident that causes casualties; j) failing to pay administrative fines for moderate violations.	Add one provision between letters g and h: "Does not comply with the provisions of the Minimum Standard of Goods Transportation Documents that have been determined."	It is categorised as a severe violation because it results in the null and void of the standard agreement made by the shipping company, as stipulated in Article 18 § 3 of the Consumer Protection Law.

CONCLUSIONS

In conclusion, Article 18 of the Consumer Protection Law in express delivery companies in Denpasar City has not been fully implemented, particularly regarding the provisions of § 1 letters a, c, e, and § 2. This inadequate implementation can be attributed to the express delivery companies' emphasis on efficiency and profit-seeking rather than adhering to the provisions of Article 18 of the Consumer Protection Act. Additionally, the absence of monitoring through a letter of agreement for transporting goods has further contributed to the lack of enforcement.

As for formulating public policy related to the implementation of Article 18 of the Consumer Protection Law on express delivery companies in Denpasar City, it is suggested to incorporate a letter of agreement for the transportation of goods as an essential component of the Transportation Document element.

In light of these findings, specific suggestions are put forward. Firstly, law enforcement should adopt a comprehensive approach, ensuring all aspects regulated in the legislation are covered. The formation of regulations under the Act

should be mandated to regulate its technical implementation effectively.

Furthermore, formulating public policies concerning the implementation of Article 18 of the Consumer Protection Law on express delivery companies in Denpasar City should encompass all relevant aspects of its regulation. This necessi-

tates the inclusion of additional provisions in Appendix II of Minister of Transportation Regulation No 60 of 2019, explicitly addressing Minimum Service Standards for Special Goods Transport, Article 56, Article 71 § 1, and Article 80 § 4 of Minister of Transportation Regulation No 60 of 2019.

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The Urgency of Protection for Women Workers Against Sexual Violence in the Company Environment

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Abstract. This paper examines the inclusion of verbally displaying sexual acts (commonly known as catcalling) within the framework of criminal law in Indonesia. It also analyzes the legal protections afforded to victims of such actions under Law No 12 of 2022 concerning Crimes of Sexual Violence (TPKS Law). Verbal sexual concealment, or catcalling, involves the non-physical expression of sexual acts directed at an individual's body, sexual desires, and/or reproductive organs. This undermines the person's dignity based on their sexuality and/or modesty. Under the TPKS Law, victims of verbal sexual harassment, or catcalling, are granted specific legal protections. These include the right to be shielded from acts of violence and the right to be free from any treatment that undermines their dignity. These protective measures encompass the fulfilment of ownership and the provision of assistance to ensure the victims' sense of security. The LPSK or other relevant institutions are responsible for carrying out these protective measures by the requirements outlined in the law.

Keywords: Catcalling; Legal Protection; Sexual harassment; Victim.

INTRODUCTION

Essentially, man was created by God to the same degree. No factor causes a higher status of humans over one another. Therefore, both men and women can respect each other and are expected to be able to create relationships without gaps. Both men and women should have equal opportunities in various matters and an equal distribution of work. Although the two have many differences, some interchangeable and some non-interchangeable, biologically, both males and females have many differences. Understanding sex is a trait or division of two biologically determined human sexes inherent in a particular sex. For example, a male type of human is a human being who has or behaves like the following: a man is a man who has a penis and produces sperm.

On the other hand, women have reproductive organs such as the uterus and ducts for childbirth, produce eggs, have a vagina, and possess breastfeeding capabilities. This means that biologically, these characteristics are not interchangeable between the tools inherent in male and female humans. They are permanently un-

changed and represent a biological provision, often referred to as a natural provision [1].

Crimes against decency or moral offenses and sexual harassment are two forms of violations of decency that extend beyond national laws to become global issues [1]. Today, harassment takes on various forms, not limited to physical interactions, with one prominent form being verbal sexual abuse. In Indonesia, women are particularly prone to being victims of verbal sexual abuse. Women face a range of sensitive issues, including sexual violence and harassment, though it is rare but not impossible for men to also be victims [2]. Female victims often find themselves powerless in the face of justifiable individual, cultural, and structural brutality [3]. Moral values that should be held sacred are being torn apart and tainted by the animalistic instincts of individuals devoid of moral and ethical values.

Based on a survey conducted by a coalition consisting of Hollaback Jakarta, EMPUan, Lentera Sintas Indonesia, Perkumpulan Lintas Feminis Jakarta (JFDG), and Change.org Indonesia, it was found that the majority of victims of sexual harassment in public spaces do not wear revealing

clothes. Instead, they wear pants or long skirts (18%), hijab (17%), and long sleeves (16%). The survey results also demonstrated that most harassment incidents occurred during the day (35%) and evening (25%). Typical forms of harassment experienced by victims include verbal abuse (60%), such as comments on the body, whistling, honking, kissing sounds, racist or sexist statements, sexual remarks, and continuous unwanted approaches; physical abuse (24%), encompassing touching, confrontation, peeping, photography, swiping, and stalking; and visual abuse (15%), involving flirting, indecent gestures, public masturbation, and genital exposure [4].

Verbal sexual harassment, often called catcalling, is commonly used across various countries, including Indonesia. The absence of specific regulations addressing catcalling in the current Indonesian law has led some to perceive it as commonplace, with particular individuals arguing that the actions of catcalling perpetrators are influenced by factors such as the victim's attire and body language. A reasonable assessment of sexual harassment emerges when the behaviour culminates in feelings of offence, shame, and fear. While harassment that is considered commonplace in society may seem innocuous, it can yield profoundly negative consequences for victims. Verbal sexual harassment, exemplified by catcalling, not only causes discomfort, disturbance, and fear but may also lead to trauma or mental disorders for the victim.

Contrary to the belief held by some that catcalling is unremarkable, it is, in fact, a crime. According to Kartono, sociological crimes encompass all verbal and behavioural actions that hold severe economic, political, and sociological detriments for society, thereby violating moral norms and compromising the safety of citizens (as delineated in criminal law). A victim of verbal sexual abuse is an individual who suffers mental and psychological harm due to catcalling, resulting in feelings of shame, distress, and fear [5].

Victims should receive protection from society, law enforcement authorities, and the government. However, prevailing stereotypes within the community often unfairly stigmatize victims, attributing all forms of sexual harassment to their behaviour. In light of the escalating instances of harassment in Indonesia, it becomes imperative for the state to guarantee every citizen a secure and comfortable environment, even in areas that

remain culturally sensitive, such as those related to sexuality. This responsibility extends not only to raising awareness within the community but also to law enforcement agencies. In such a context, the community, law enforcement personnel, and the state must collectively prioritize the well-being of victims of sexual harassment, encompassing both physical and non-physical forms [6].

Problem Statement. What is the Urgency of Protection for Women Workers Against Sexual Violence in the Corporate Environment?

METHODS

This research employs a normative legal approach to explore the pressing issue of protection for women workers against sexual violence in the corporate environment. The normative legal research method is chosen as it primarily focuses on analyzing and interpreting legal principles, doctrines, and norms to provide a comprehensive understanding of the legal framework surrounding the subject matter [7].

Data for this study was collected through a comprehensive review of relevant legal documents, including statutes, regulations, and case law, at both national and international levels. Additionally, scholarly articles, reports, and academic literature addressing issues of sexual violence and harassment in the workplace will be examined to provide a holistic understanding of the topic.

RESULTS AND DISCUSSION

The position of women in social life has not been on par with men despite ongoing efforts in that direction. The prevalence of social, cultural, and institutional factors that place women in subordinate positions to men remains a significant concern. Gender analysis consistently reveals instances of subordination, marginalization, domination, and violence experienced by some women. Research conducted in four provinces indicated that approximately 90 % of women had encountered violence in public areas. Disturbingly, even within the confines of their own homes, women are not immune to violence. One form of violence against women is sexual violence, which, according to available data, appears to be as prevalent as non-sexual violence. Sexual violence is often used interchangeably with sexual harassment. From the perspective of women as victims, these two terms are indistinguishable.

Therefore, in this paper, the term "sexual harassment" is primarily used. In incidents of sexual harassment, the majority of victims are women, and the perpetrators are overwhelmingly men. This does not imply that no instances of sexual assault against men occur, but such cases are relatively rare [8].

Labour issues encompass a broad spectrum of complex dimensions. Given Indonesia's sizable population and the higher percentage of females than males, these factors significantly impact the labour landscape. Additionally, unfavourable economic conditions can influence educational attainment. Acts of harassment cause disturbance and pose significant harm to the harassed individuals. Creating comfortable working environments necessitates a focus on eliminating sexual harassment from the workplace. Sexual harassment can affect anyone and harm all parties involved. It encompasses unwanted sexual acts, solicitations for sexual acts, verbal or physical behaviour of a sexual nature, or any other actions that lead to feelings of offence, humiliation, and intimidation within reasonable circumstances. Such conduct interferes with work, creates an intimidating atmosphere, or fosters a hostile work environment. Forms of workplace harassment include [9]:

1. Physical abuse involving unwanted touching may escalate to sexual acts such as kissing, patting, pinching, lingering glances, and leering.
2. Verbal harassment includes unwelcome comments about personal lives, body parts, and appearance.
3. Harassment through gestures, including sexually suggestive body language or repeated gestures involving fingers and lip-licking.
4. Written or graphic harassment involves sending or displaying pornographic materials, sexual images, screensavers, posters, or harassment through email and electronic communication.
5. Psychological (emotional) abuse, encompassing persistent and unwanted requests for dates, insults or reproaches of a sexual nature.

Research suggests that individuals who experience sexual harassment in the workplace are more likely to intend to leave their jobs than those who have not experienced such harassment. Specifically, the results showed that employees who were sexually harassed had 1.63 times greater odds of intending to leave

their jobs than those who had not experienced sexual harassment.

An essential aspect of sexual harassment involves the unwillingness or rejection of any form of sexual attention. If the recipient does not desire an action and falls within the purview of sexual acts, it can be categorized as sexual harassment, as stipulated in the fornication article. The Criminal Code (KUHP) in general (*Lex Generalis*) can also serve as a basis for imposing penalties, as specified in Articles 289-299. Regarding indecent acts in the workplace, particularly if committed by superiors, provisions can be found in Article 294, paragraph 2, number 1 of the Criminal Code. This article prescribes imprisonment for a maximum of 7 (seven) years for officials who engage in inappropriate behaviour with individuals who, due to their position, are subordinates or with those whose care has been entrusted or delegated to them [10].

To gain a deeper understanding of sexual harassment, its prevention, and appropriate handling, it is essential to grasp certain concepts related to workplace sexual harassment [11]. Harassment often takes advantage of power dynamics, leaving victims struggling to defend themselves. Workplace harassment encompasses any unwanted, repetitive, and unreasonable actions directed at a worker or group of workers, resulting in difficulties in carrying out assigned duties or creating an atmosphere of disharmony within the corporate environment that can pose health and safety risks.

The health risk primarily involves psychological threats to the victim of the abuse, while the safety risk entails potential intimidation by the harasser. The term "workplace" extends beyond a physical room where work activities such as offices or factories are conducted eight hours a day. It also encompasses locations related to work responsibilities within the employment relationship, including work-related social events, seminars and training sessions, business trips, lunches, business dinners, or promotional campaigns organized to establish official business connections with clients and potential partners. Additionally, it encompasses telephone conversations and communication via electronic media. Therefore, the notion of the workplace contains physical spaces and all working hours outside the parameters outlined in Law No 13/2003 concerning Manpower [12].

In the Criminal Code, "sexual harassment" is not recognized; it only acknowledges the concept of "obscene acts" as outlined in Articles 289–290. Additionally, the Criminal Code does not explicitly prescribe punishments for perpetrators of sexual harassment. However, the law prohibits all inappropriate acts, violence, or threats related to engaging in sexual relations. This legal provision forms the foundation for addressing the criminal offence of sexual harassment in the workplace. The victim or someone with knowledge of the incident must file an official report to initiate proceedings. The Penal Code stipulates penalties of up to two years and eight months of imprisonment and fines for these offences. In instances involving sexual violence, the penalty escalates to 12 years in prison [13].

Within the context of certain crimes, a functional relationship often exists between the victim and the perpetrator, implying that the victim may bear some responsibility for the occurrence of these crimes. Take, for example, the case of rape, where the victim's role can be both conscious and unconscious in committing the crime. The victim's actions and circumstances can sometimes serve as stimuli that encourage or prompt the perpetrator to commit the offence. It is important to note that attributing a role to the victim in cases of rape does not shift blame onto the victim; instead, the perpetrator remains accountable for their actions.

According to Arif Gosita's perspective, these stimuli can manifest as specific situations and conditions [14]. "The victim's role is rooted in particular situations and conditions that can prompt the perpetrator to commit a crime against them. These situations and conditions often relate to the victim's physical and mental vulnerabilities. The victim's role can be enacted consciously or unconsciously, through active or passive engagement, either independently or jointly, and may be motivated by positive or negative factors" [15].

A relationship exists in specific criminal scenarios involving victims and perpetrators due to factors such as introduction, shared interests, cohabitation, or engagement in similar activities. This relationship need not be continuous or direct. Within this dynamic, the victim's situation and circumstances become intertwined with the perpetrator's, enabling the latter to exploit the victim to fulfil their interests and desires. This exploitation is driven by specific motivations and

rationalizations that sometimes seek to justify the perpetrator's wrongful actions based on these motivations and rationalizations [16].

The Oxford Dictionary defines catcalling as translated through whistles, calls, and comments of a sexual nature. More broadly, catcalling refers to whistles, rings, and statements of a sexual nature [9]. Verbal abuse involves uttering demeaning words in a satirical tone, publicly or directly highlighting a person's sexual behaviour with the intention of humiliation, insult, and ridicule. Verbal sexual harassment or catcalling is perceived as deviant behaviour, as it places the act within a sexual context, designating someone as an object of unwanted attention.

Verbal sexual harassment comprises acts with sexual undertones, including using sexually suggestive language towards an individual, whistling at strangers, and engaging in flirtatious and coquettish behaviour in public spaces. This form of verbal abuse can escalate to sexual violence, including rape. Women, often objectified, tend not to respond to such treatment. However, the reality is that refusals frequently provoke perpetrators of verbal sexual harassment, triggering their curiosity and potentially leading to the perpetration of other forms of sexual violence. This can leave victims feeling harassed, disturbed, and violated regarding their human rights [17].

Various types of verbal messages are employed by catcalling perpetrators when targeting their victims. These messages often take the form of tones, such as kissing sounds from a distance or whistling. Additionally, comments are frequently used – these may involve remarks on body shape or seemingly harmless greetings that, in context, serve a harassing purpose. Some individuals go as far as openly expressing lewd comments about their victims. Furthermore, intense and lingering eye contact can also be considered harassment, as it creates discomfort for the person being stared at. For instance, when someone scrutinizes another individual from head to toe.

In light of the definition of unwanted or inappropriate actions constituting various forms of sexual attention, acts of verbal sexual harassment can be classified as criminal offenses, warranting legal action due to their potential to cause verbal sexual harassment. The understanding of verbal abuse (catcalling) is primarily derived from the perspective of victims who suffer psychological distress and losses from such crimes. This interpretation aligns with Article 1, point 3 of Law

Number 31 of 2014, which pertains to Amendments to Law No 13 of 2006 concerning the Protection of Witnesses and Victims.

The emotional turmoil experienced by victims—feelings of shame, distress, unacceptability, and depression — due to verbal sexual abuse categorizes those subjected to catcalling as direct victims. These victims exhibit traits of both individual and collective persons, undergoing mental and emotional suffering while having their human rights violated by actions perceived as criminal offences. Such requests are entitled to protection and fulfilment under Article 5 of Law No 31 of 2014, which amends Law Number 13 of 2006 concerning the Protection of Witnesses and Victims, commonly known as the "Law on Sex Workers" (UU PSK) [18].

Within the Criminal Code, regulations on punishing those responsible for verbal sexual abuse have not yet been established. This absence is evident in both Chapter XIV of Book II, Crimes, and Chapter VI of Book III, Types of Offenses (spanning from Article 281 to Article 283). Although moral crimes are addressed generally, the existing regulations do not sufficiently encompass the issue. Specialized legal provisions have also not adequately addressed the crime of sexual harassment, specifically in the context of verbal sexual harassment.

In the framework of Law No 44 of 2008 concerning Pornography, an indirect level of protection is offered to victims of verbal abuse (catcalling) based on the actions undertaken. Article 4 stipulates, "Everyone is prohibited from producing, making, reproducing, duplicating, disseminating, broadcasting, importing, exporting, offering, trading, renting, or providing Pornography that explicitly contains: a) explicit acts, including those of a divergent nature; b) instances of sexual violence; c) acts of masturbation; d) nudity or explicit displays of nudity; e) depiction of genitalia; f) child pornography." Moreover, Article 6 states, "Everyone is prohibited from listening to, displaying, utilizing, possessing, or storing pornographic materials as referred to in Article 4, § 1, except when authorized by laws and regulations." Article 8 emphasizes that "everyone shall not knowingly or with consent be a subject or model containing pornographic content." Lastly, Article 10 establishes that "everyone shall not publicly exhibit themselves or others in any performance or public display depicting nudity, sex-

ual exploitation, sexual intercourse, or other pornographic content" [19].

Similarly, the ITE Law does not provide direct protection for victims of verbal harassment (catcalling). However, due to its prohibition, it indirectly safeguards victims of verbal sexual harassment (catcalling), as outlined in Article 27, § 1: "Anyone who intentionally and without right distributes and/or transmits and/or makes accessible Electronic Information and/or Electronic Documents that have content violating decency." These two laws collectively form the foundation for regulating verbal harassment (catcalling) under Indonesian criminal law. While the existence of this regulation is implicit, it has not been expressly detailed. Furthermore, in the context of the TPKS Law, the legal framework surrounding sexual violence lacks optimal provisions for prevention, protection, access to justice, and recovery. It has yet to meet the comprehensive needs of victims of Sexual Violence Crimes and has not thoroughly addressed procedural aspects. The TPKS Law presents a comprehensive definition of non-physical or verbal harassment in Article 1, point 1: "Sexual Violence Crime encompasses all acts that fulfil the elements of a criminal offence as stipulated in this Law and other acts of sexual violence as specified in this Law to the extent outlined within this Law."

Additionally, Article 4, § 1 of the Criminal Act of Sexual Violence encompasses the following: a) non-physical sexual harassment; b) physical, sexual abuse; c) forced contraception; d) forced sterilization; e) forced marriage; f) sexual torture; g) sexual exploitation; h) sexual slavery; i) electronic-based sexual violence [14].

Article 5 of the TPKS Law states, "Any individual who engages in non-physical sexual acts directed towards the body, sexual desires, and/or reproductive organs, to degrade a person's dignity and respect based on their sexuality and/or decency, shall be deemed guilty of non-physical sexual harassment. This offence carries a maximum sentence of 9 months imprisonment and/or a maximum fine of Rp10.000.000,00 (ten million rupiah)." The explanation provided for Article 5 clarifies that "non-physical sexual acts" refer to statements, gestures, or actions that are inappropriate and have a sexual connotation, aimed at degrading or humiliating individuals. Verbal harassment (catcalling) constitutes an act that involves the use of indecent language, verbal expressions, and non-verbal behaviours [20]. Such

actions can take various forms, including tones like kissing sounds or whistling, as well as comments on body shape or seemingly harmless sentences like greetings or compliments. Some individuals even explicitly utter vulgar remarks about their victims. Extended periods of intense eye contact can also contribute to discomfort for the observed person.

CONCLUSIONS

Sexual harassment targeting female workers is a subject of significant interest across various fields of knowledge and has been extensively discussed worldwide from diverse perspectives. This study aims to systematically review the scientific body of work concerning on-site sexual harassment within the workplace. Leaders who demonstrate respect towards female employees within the corporate environment yield a notably positive outcome, as evidenced by a substantial

reduction in the occurrences of sexual harassment. Such conducive working conditions foster a heightened psychological safety among female workers. Proactive measures are recommended to address and prevent such issues. The employee recruitment department should display the resolve to screen out prospective employees who exhibit traits that could potentially contribute to the development of sexual harassment cases. Alternatively, informing all female employees to opt for modest attire can be a preventive measure against unwanted incidents. Promoting awareness and fostering a culture of respect for the dignity of women within the workplace through training programs is another commendable strategy. Lastly, implementing stringent regulations backed by comprehensive sanctions and protective measures against sexual harassment is pivotal in curtailing these undesirable occurrences.

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The Submission of Judicial Review by the Public Prosecutor Following the Decision of the Constitutional Court No 20/PUU-XXI/2023 (Indonesia): an Examination of Legal Protection for the Rights of the Convicted

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Abstract. This paper examines the inclusion of verbally displaying sexual acts (commonly known as catcalling) within the framework of criminal law in Indonesia. It also analyses the legal protections afforded to victims of such actions under Law No 12 of 2022 concerning Crimes of Sexual Violence (TPKS Law). Verbal sexual concealment, or catcalling, involves the non-physical expression of sexual acts directed at an individual's body, sexual desires, and/or reproductive organs. This undermines the person's dignity based on their sexuality and/or modesty. Under the TPKS Law, victims of verbal sexual harassment, or catcalling, are granted specific legal protections. These include the right to be shielded from acts of violence and the right to be free from any treatment that undermines their dignity. These protective measures encompass the fulfilment of ownership and the provision of assistance to ensure the victims' sense of security. The LPSK or other relevant institutions are responsible for carrying out these protective measures by the requirements outlined in the law.

Keywords: Catcalling; Legal Protection; Sexual harassment; Victim.

INTRODUCTION

The rule of law is characterised by acknowledging and safeguarding individuals' rights, which are held in esteem and protected. These individual rights represent fundamental rights inherent in human beings, reflecting the essence of human existence. Constitutional provisions govern the safeguarding of these human rights. Within a legal state, the hierarchy in legislation places the Constitution at the highest level as a source of law, especially within the jurisdiction of Indonesia, with the Constitution reigning supreme in the legal framework [1]. The Constitution encompasses the acknowledgement, assurance, protection, and legal assurance of individual rights.

The recognition of individual rights within the realm of law is exemplified by the process of judicial review, which constitutes one of the rights conferred by the law (after this referred to as the "Law"). A judge's verdict serves as the resolution in a criminal case. Simultaneously, this judicial decision is the origin of all legal endeavours to

uphold legal certainty. Consequently, the judge's decision embodies a sense of confidence and must exemplify fairness, offering advantages to all parties involved [2]. *Herziening*, a Dutch term meaning review, is seen as an effort to seek justice when you feel aggrieved by the district court's decision or appeal [3].

Reconsideration (now referred to as "PK") is a part of law enforcement aimed at creating a law that is both certain and just, thereby benefiting Indonesian society. The principles of fairness and trial independence are implemented within the legal system in Indonesia for legal efforts, making legal remedies a means to rectify errors in the execution of the law, as manifested in decisions at the district and high court levels [4].

Correction of a judge's decision due to indications of errors can be achieved through Legal Remedies, enabling the rectification of previous judicial decisions [5]. The principle of consensus deliberation is utilised in legal efforts for revisiting criminal legal proceedings. Judges deliberate

based on facts and circumstances about the overall matter observed and found during the trial process. When a judge's decision entails criminal sanctions, the judge provides information on the defendant's rights [6]. For the execution of their rights, convicts are allowed to make specified legal efforts as stipulated by the law, including regular legal recourse at the appellate and cassation levels and an extraordinary legal remedy known as reconsideration, representing the final legal recourse.

Every effort made by a convict involved in a court case, resulting from suffering harm to their rights and seeking to achieve justice by the established procedures under the legislation, can be classified as a legal recourse. When dissatisfied with a decision at the district court level, a convict can file an ordinary legal remedy, including appeal and cassation. If a cassation decision is perceived to be detrimental to the convict after it has become legally binding, an extraordinary legal remedy known as reconsideration can be pursued. Special legal remedies represent a last-resort measure in seeking justice for the convict, with all procedural steps stipulated by the law.

Legal remedies that can be pursued by the accused or convicts have been regulated by law to ensure that the applicable law protects these legal actions for the entire Indonesian society. Legal remedies consist of appeals in the high court, cassation in the supreme court, and an extraordinary legal remedy known as reconsideration. A final court decision, which has become legally binding, can be submitted by a convict for reconsideration and presented to the highest legal institution, namely the Supreme Court (from now on referred to as "MA"). As stipulated in the law, a reconsideration request acknowledges individual rights, granting freedom to pursue justice following regulations. However, it is essential to note that reconsideration is not only given to convicts but can also be pursued by heirs or family members of convicts [7]. Martiman Prodjohamidjojo opines that legal remedies serve as a means to correct errors in previous judicial decisions [8]. Legal remedies aim to ensure certainty in implementing justice and act as a means of protection for convicts in cases with indications of judicial bias. Additionally, legal remedies serve as a means to correct errors in the execution of justice by legal authorities. Furthermore, legal remedies serve as an avenue for convicts to present new evidence and infor-

mation that remains within the scope of fundamental criminal issues [9].

The philosophical foundation of reconsideration is rooted in restoring convict rights, signifying the protection of human rights inherent to convicts. Thus, convicts are not solely viewed as legal subjects who have committed legal transgressions but are seen in balance, with their rights protected through extraordinary legal efforts to pursue justice. This rationale underscores the limitation of reconsideration to convicts and their heirs or families. However, it is worth noting that public prosecutors have also submitted reconsideration requests, thereby prompting the establishment of Constitutional Court Decision No 20/PUU-XXI/2023.

The case under consideration in the Constitutional Court decision originated from the case of a notary in Denpasar named Hartono, who was suspected of falsifying documents. In the conclusion of the Gianyar District Court, Hartono was found to have participated in the forgery of documents. Subsequently, Hartono pursued a legal remedy by appealing to the Bali High Court, which acquitted him of the charge of document forgery. However, the Public Prosecutor's Office sought cassation. In the cassation decision, Hartono was found to have been involved in document forgery, prompting Hartono to resort to an extraordinary legal remedy – reconsideration.

On September 15, 2021, the reconsideration decision ruled that Hartono was not proven to have engaged in document forgery and was acquitted of all charges. The reconsideration request submitted by Hartono was based on the provision of Article 30C § h of the Republic of Indonesia Law No 11 of 2021 concerning Amendments to Law No 16 of 2004 concerning the Republic of Indonesia Attorney General's Office. This request, initiated by the Public Prosecutor's Office, was deemed to violate the Criminal Procedure Code (KUHP) provisions and infringe upon the defendant's constitutional rights. As a result, Hartono filed a Judicial Review against Article 30C § h of the Republic of Indonesia Law No 11 of 2021 concerning Amendments to Law No 16 of 2004 concerning the Republic of Indonesia Attorney General's Office.

The Judicial Review submitted by Hartono was approved by the Constitutional Court, as stated in Decision No 20/PUU-XXI/2023. The operative part of the decision says that Hartono's petition is granted in total, and Article 30C § h of the Re-

public of Indonesia Law No 11 of 2021 concerning Amendments to Law No 16 of 2004 concerning the Republic of Indonesia Attorney General's Office is declared to be without legal force. The Constitutional Court's decision provides a philosophical understanding that reconsideration emphasises the convict's fundamental rights to receive fair and equal treatment under the law, allowing individuals to advocate for their rights and justice. Reconsideration is a means the state grants convicts to assert and protect their rights. The rights inherent to convicts are fundamental human rights; therefore, reconsideration is inherently linked to these fundamental human rights. Extraordinary legal remedies are grounded in historical and philosophical meanings and are created to safeguard the rights of the parties involved in legal proceedings. Protecting convict rights is a concept enshrined in the Criminal Procedure Code (KUHP). In the context of human rights, reconsideration becomes an essential instrument to shield individuals from potential abuses of power or systemic errors that may occur within the judicial process.

Public prosecutors cannot file a request for reconsideration (PK) against a court decision because the fundamental principle of reconsideration is to protect the convict's human rights. This ensures that convicts obtain fair legal certainty in their judicial process. Although errors in a convict's acquittal decision or the discovery of new evidence indicating the convict's wrongdoing may arise, such considerations can only be entertained if the evidence is obtained before the final decision. The lengthy judicial process, including investigation, prosecution, examination, and findings at the first-instance, appellate, and cassation levels, provides ample opportunity for public prosecutors to exercise their authority in proving the convict's guilt. Therefore, from a fair perspective, the scope of reconsideration examinations should be limited to convicts, heirs, or convict families. The authority held by public prosecutors in the previous judicial process is deemed to have granted sufficient opportunity for them to demonstrate the convict's guilt.

The above descriptions and background explanations have led researchers to focus their study on the issue of the principle of legal protection for convict rights in the implementation of extraordinary legal remedies, namely reconsideration. Consequently, when public prosecutors initiate reconsideration of legal remedies, they violate the principle of legal protection in reconsidera-

tion, which is intended exclusively for convicts. In the Criminal Procedure Code (KUHP), reconsideration adheres to the principle of advocating individual rights when facing the state. In this context, reconsideration becomes the right of convicts and their heirs or families, as stipulated in Article 1 No 12 and Article 263 § 1 of the KUHP. The main essence of reconsideration is for the benefit of convicts and their heirs or families, allowing them to review legally binding court decisions. If public prosecutors also have the right to reconsideration, the essence of reconsideration would be compromised. This is because the accusatorial principle places the convict as a principle of non-guilt, leading to disorientation. The right of reconsideration, originally intended to protect convict rights, would become fragmented and susceptible to misuse by public prosecutors for the interests of their institution without considering principles of justice and legal certainty.

Thus, this research will trace and deeply analyse the concept of the principle of legal protection in the context of extraordinary legal remedies, particularly the review process. This study aims not only to comprehend the essence of the rights of convicted individuals within the judicial system but also to highlight how the dynamics of legal modernisation and societal interests confront this principle. With a more profound understanding of the crucial role of the principle of legal protection, this research endeavours to ensure that extraordinary legal remedies, such as the review process, remain within the framework of justice, human rights, and legal certainty. These efforts are geared towards gaining a more comprehensive understanding of the critical role of the principle of legal protection in maintaining the integrity and balance of a modern justice system.

METHODS

This research employs a conceptual approach, Legal Approach, and Historical Approach. In this study, the researcher utilises three crucial legal materials in analysing and comprehending the examined issues. Firstly, primary legal sources are used, encompassing various relevant legislative regulations such as Law No. 8 of 1981 concerning criminal procedural law, Law No 48 of 2009 concerning judicial authority, Constitutional Court Decision No 20/PUU-XXI/2023, and Republic of Indonesia Law No 11 of 2021 amending Law No 16 of 2004 concerning the Prosecutor's

Office. Secondly, secondary legal sources, including official documents, textbooks, and legal publications, also serve as vital sources of information to support this research. These publications encompass various books, legal journals, and commentaries on court decisions, providing deeper insights into legal issues. Finally, tertiary legal materials, such as legal dictionaries and encyclopedias, are also used to enhance the understanding of relevant technical terms and legal concepts.

The technique of legal material analysis in this study employs qualitative content analysis, examining the concepts of an integrated criminal justice system, material truth in criminal procedural law, and other relevant concepts. These concepts are subsequently analysed to determine whether regulations limit criminal case review. After identifying the findings of this analysis, the research concludes with new insights into the statute of limitations on the study of criminal cases by the principles governing the criminal justice system in Indonesia. The legal materials analysed using qualitative content analysis will be presented systematically, explaining the inter-relationships among the legal sources used. Subsequently, all these legal materials are selected, processed, and presented descriptively to conclude by identifying the specific characteristics of electronic proceedings, thus leading to solutions and resolutions for the intended issues.

RESULTS AND DISCUSSION

The essence of filing a reconsideration by convicts and their heirs after constitutional court decision No 20/puu-xxi/2023 from the perspective of legal certainty

1. Procedure for Filing a Reconsideration Request by Convicts. Article 263 § 2 of the Criminal Procedure Code (KUHP) outlines the reasons that can serve as the basis for a reconsideration request, which the applicant expresses in a "reconsideration request letter." In this letter of recommendation or reconsideration application, the applicant clearly states the underlying reasons for the request.

Considering the provisions of Article 264 §§ 1, 4, the formal requirement to determine the validity of a reconsideration request is a "request letter" for reconsideration. Without a request letter that contains reasons as a basis, such a request is con-

sidered "non-existent." This viewpoint is supported by Article 264, §§ 1, 4, which affirms:

a) The last sentence of § 1 affirms that the applicant must clearly state the reasons for the reconsideration request;

b) §4) affirms that if the petitioner for reconsideration is a convict who lacks a proper understanding of the law, the court clerk, when receiving the reconsideration request, is obligated to inquire about the reasons from the petitioner. For this purpose, the court clerk prepares a reconsideration request letter.

Based on the above assertion, the formal requirement for a reconsideration request is the existence of a "request letter" containing the reasons that form the basis of the reconsideration request. Whether this request letter containing explanations is created by the convict or the court clerk of the District Court, as stipulated in Article 264 § 4, is not the issue. What matters is that as a requirement for the request's validity, it must be submitted in a reconsideration request letter that explains the underlying reasons. The reasons forming the basis for the reconsideration request are detailed in Article 263 §§ 2, 3 of the law [10].

Suppose the convict, as the petitioner for reconsideration, has a limited understanding of the law. The court clerk must inquire about and record the reasons in that case, creating a reconsideration request letter. This reconsideration request must then be communicated to the Public Prosecutor within 14 days after receipt by the District Court. Subsequently, the Chief Justice of the District Court designates a judge to examine the case. During the proceedings for reconsideration, both the petitioner and the prosecutor participate in the hearing to provide their opinions. A record of the reconsideration hearing is then prepared by the court clerk and signed by the Judge, Prosecutor, petitioner, and court clerk. Additionally, a review of the reconsideration hearing is conducted, and the court clerk is obligated to draft a record of the Chief Justice/Judge of the District Court's opinion on the reconsideration. Following this, within 30 days, the court clerk sends the reconsideration case bundle (Bundle B), including:

a) The request letter for reconsideration, signed by the court clerk and petitioner;

b) The reconsideration request letter, along with its reasons;

- c) The record of the reconsideration opinion of the Judge/Chief Justice;
- d) Copies of the original court's decision;
- e) Copies of the appellate court's decision;
- f) Copies of the Supreme Court's decision;
- g) Any other relevant documents.

By Article 264 of the Criminal Procedure Code, the procedure for submitting a reconsideration request can be explained as follows:

1. The Request is Submitted to the Court Clerk: The petitioner submits the request to the court clerk of the District Court, who issues the initial verdict. The District Court then forwards the request to the Supreme Court.

- a) The reconsideration request, in principle:
- b) Must be submitted in writing,
- c) Must clearly state the reasons underlying the reconsideration request. It may also be submitted orally. Submitting orally is derived from Article 264, § 4. Specifically for petitioners who have a limited understanding of the law, the request may be submitted orally. Then, the court clerk transcribes the oral request into a "reconsideration request letter," which also includes the reasons provided by the petitioner.

2. Court Clerk Prepares a Reconsideration Request Deed: For juridical accountability, the court clerk of the District Court receiving the reconsideration request records it in a document commonly referred to as the "reconsideration request deed."

- a) The court clerk and the petitioner sign the deed or document,
- b) The document is then attached to the case file.
- c) This is the procedure for creating a reconsideration request deed, as regulated by Article 264 § 2 in conjunction with Article 245 § 2 of the Criminal Procedure Code.

3. Timeframe for Submitting Reconsideration Requests: The timeframe is regulated by Article 264 § 3. This provision explicitly establishes that a reconsideration request can be submitted "without a time limit."

New documents and witnesses not presented in the initial court proceeding can be submitted during the trial. Within 30 days after the test is completed, the court clerk must promptly send the case bundle to the Supreme Court. A copy of

the cover letter is provided to the petitioner and the Public Prosecutor. In cases where the request for reconsideration pertains to a decision of the Court of Appeals, the covering letter must be accompanied by a copy of the examination report and the opinion record sent to the relevant Court of Appeals. A copy of the ratified Supreme Court decision notification, certified by the court clerk, is sent to the Supreme Court. Reconsideration requests are only accepted before the District Court forwards the reconsideration request to the Supreme Court. Article 265 assigns the relevant District Court to hold a hearing before forwarding the reconsideration request to the Supreme Court.

Article 265 § 4 specifies what must be forwarded to the Supreme Court. According to this provision, the things that the Chief Justice of the District Court must send to the Supreme Court include:

1. The reconsideration request letter.
2. The original case file in its entirety, including the investigation's examination report, the trial's examination report, all documents related to the case, and all decisions related to the topic.
3. The reconsideration request examination report.
4. The opinion record.

In addition to sending the reconsideration request to the Supreme Court, the Chief Justice of the District Court is further obligated to [10]:

1. Provide the petitioner and the prosecutor a copy of the forwarding letter.
2. Provide a copy of the forwarding letter to the Court of Appeals. If the case being reconsidered is a decision of the Court of Appeals at the appellate level, an examination report and an opinion record must accompany the forwarded letter.

Some of the reconsideration decisions that can be described are as follows: a reconsideration can only be requested once (Article 268, § 3 of the Criminal Procedure Code). After the submission, the potential outcomes are:

1. The request is declared unacceptable.
2. A decision rejecting the request for reconsideration.
3. A decision affirming the reasons provided by the applicant.

Another type of decision that the Supreme Court can issue in a reconsideration request case is a decision that "affirms" the reasons for the request. The reasons for the request must genuinely involve relevant facts by Article 263 § 2. For instance, if new circumstances presented by the petitioner hold significant and appropriate value, that can undermine the situation outlined in the original decision. Or if there is an apparent and concrete contradiction between various choices. Alternatively, suppose a significant error is evident in a decision that cannot be tolerated under the law. In that case, the reasons for the request can be substantiated if such factors are present.

According to Article 266 § 2 letter b, if the Supreme Court grants the reasons for a request for review, the Supreme Court's decision accompanies such approval [10].

1. Acquittal verdict. For instance, the petitioner submits a new circumstance supported by "new evidence" that could undermine the proof of the convict's guilt. In cases like this, the new evidence or possibility is evaluated and considered to negate the re-evaluation of evidence, thus proving the convict's guilt. Therefore, the convict's responsibility should be declared unproven, leading to an acquittal verdict or in cases where a legally irrefutable error is present in a final and binding judgment that cannot be lawfully justified.

The mistake or error cannot be excused, or it is not an error that can be tolerated. The only way to rectify such an error is by overturning the decision with alternative outcomes such as "release," "exemption from all legal claims," or "application of a milder provision." In practice, the Supreme Court grants very few review requests. Of the many proposals submitted, only one in a hundred is accepted. One of the requests for review granted by the Supreme Court is the decision dated March 15, 1984, No 20 PK/Pid/1983. According to the final and binding court decision, the defendant was sentenced to 3 years for murder as formulated in Article 338 of the Criminal Code. The defendant requested to review the decision, arguing that the decision clearly showed a judge's error, who had declared the defendant guilty based solely on circumstantial evidence. However, according to Article 188 § 2 of the Criminal Procedure Code, circumstantial evidence can only be drawn and obtained from witnesses, documents, and the defendant's statements. Such evidence was not presented during

the trial, as neither the statements of witnesses nor the defendant's statements and documents provided any indications proving the defendant's guilt for the alleged crime. The Supreme Court upheld the objection on the grounds of the following considerations:

a) The judge's decision clearly shows a significant error as stipulated in Article 263 § 2 letter c, as the defendant consistently denied the alleged guilt from the beginning, both for the primary and subsidiary charges.

b) Not a single witness saw the defendant pushing the victim out of the train, causing the victim to fall and die instantly.

c) The defendant's parents, police, and prosecutor only suspected the defendant of committing the murder, but these were mere individual conclusions unsupported by valid evidence.

Based on the above considerations, the request for review can be granted, and the Supreme Court can "annul" the original decisions.

2. Discharge from all legal claims. Another alternative that the Supreme Court can decide if the reasons for a request for review are justified is to issue a verdict of "discharge from all legal claims." This may occur if the new circumstances presented by the petitioner demonstrate a situation that removes the criminal nature of the alleged act, placing it outside the scope of criminal offence or violation, as the act in question is not a criminal offence or offence. Alternatively, if there is a contradiction or error in the decisions, this contradiction or error negates the criminal nature resulting from the denial or mistake.

3. Not accepting the public prosecutor's demand. Another decision that the Supreme Court can render in justifying a request for review is a verdict stating that it does not accept the public prosecutor's demand. Such a decision can be made if it is revealed that there are new facts or circumstances indicating that the case had previously been examined and decided. Alternatively, if the defendant dies during the trial proceedings, the court still renders a verdict and imposes a penalty on the deceased defendant. However, based on Article 77 of the Criminal Code, the defendant's death should rightfully invalidate the prosecutor's authority to pursue the case.

4. The decision was made by applying a milder criminal provision. A decision involving the application of a softer illegal provision may be rele-

vant in cases where the indictment provides alternative or subsidiary charges. For example, the defendant is charged alternatively with the criminal act of premeditated murder, subsidiarily with murder, or further subsidiarily with assault resulting in death. The court sentences the defendant based on the primary charge of premeditated murder, per Article 340 of the Criminal Code. Subsequently, this decision becomes final and binding. Against this decision, the convict files a request for review. According to the reasons presented, it becomes apparent that the decision contains a significant error or new circumstances that could nullify the proof of premeditation in the criminal act, leading to the correct application of the charge of murder under the subsidiary charge, as per Article 338 of the Criminal Code. Alternatively, the judge's error or the new circumstances might hold a value that negates the elements previously considered proven regarding the act of murder. For instance, by eliminating the intent to take another person's life, the appropriate charge to apply is causing death, as per Article 351 § 3 of the Criminal Code.

2. The Essence of the Principle of Legal Certainty in Post-Constitutional Court Decision No 20/PUU-XXI/2023 Review. In post-review cases following Constitutional Court Decision No. 20/PUU-XXI/2023, the principle of legal certainty becomes crucial to ensure that the review process is conducted transparently and per the prevailing laws. The following are some ways the code of legal certainty can be applied in post-review cases following Constitutional Court Decision No. 20/PUU-XXI/2023.

The principle of legal certainty must be applied to the review process to ensure that it is conducted transparently and by the prevailing laws. This can help maintain justice and effectiveness in the legislative process in Indonesia [11].

Clear regulations regarding the review process should be established to ensure that the process is conducted correctly and by the prevailing laws. This can help maintain legal certainty and prevent conflicts or inconsistencies between the laws in force [12].

The review process should be conducted while considering human rights and not restricting those rights. This can help maintain justice and effectiveness in the legislative process in Indonesia [12].

Meaningful participation from the public in the review process can help maintain justice and effectiveness in the legislative process in Indonesia. This participation should be positioned as a fundamental principle and legal policy in the legislative process in Indonesia [13].

In conclusion, the principle of legal certainty is crucial in post-review cases following Constitutional Court Decision No. 20/PUU-XXI/2023 to ensure that the process is transparently conducted and by the prevailing laws. Clear regulations, the protection of human rights, and meaningful participation from the public can help maintain justice, effectiveness, and legal certainty in the legislative process in Indonesia. The principle of legal certainty in post-MK No. 20/PUU-XXI/2023 cases is consistently applied in line with Constitutional Court Decision No. 34/PUU-XI/2013. This decision states that the principle of legal certainty in the review process remains applicable, and legal certainty exists from the appellate and cassation levels. True legal certainty is achieved when the convict is subject to a review decision. Decision No. 34/PUU-XI/2013 allows for more than one review process without undermining the principle of legal certainty. The decision aims to seek material justice and truth, and justice cannot be restricted by time. The Constitutional Court protects human rights by not limiting the review process. However, the Supreme Court issued Supreme Court Circular Letter (SEMA) No. 7 of 2014, restricting the submission of a request for review in criminal cases to only one time. This circular letter has caused confusion among law enforcement agencies and those seeking justice.

Review by the Public Prosecutor's Office from the perspective of legal protection for the rights of convicts

1. Violation of Subject and Object Elements in Requests for Review by the Public Prosecutor's Office. The Constitutional Court, as one of the branches of the judiciary with powers specified in Article 24C § 1 of the 1945 Constitution of the Republic of Indonesia, is empowered to adjudicate at both the first and final levels, with decisions that are considered final, to examine a law against the 1945 Constitution.

The controversy surrounding the prohibition for the public prosecutor to file a request for a review arose from Constitutional Court Decision No. 33/PUU-XIV/2016, issued on May 12, 2016.

This decision was prompted by a request from Anna Boentaranyang, who felt aggrieved by the provision of Article 263 § 1 of Law No. 8 of 1981 concerning Criminal Procedure (KUHP).

Based on the considerations and decision of Constitutional Court Decision No. 33/PUU-XIV/2016, essentially, the decision stated that the Public Prosecutor's Office cannot submit a Request for Review in criminal cases. The Constitutional Court argued that the Public Prosecutor's Office is granted rights and authority throughout the investigation process, up to the appellate and cassation levels, in the interest of the law. Furthermore, the Constitutional Court affirmed that the review mechanism is intended for the benefit of the convict, not the state or the victim. Therefore, only convicts or their heirs can submit a Request for Review as an extraordinary legal remedy.

In summary, Constitutional Court Decision No. 20/PUU-XXI/2023 essentially states that the provision of Article 30C letter h of Law No. 11 of 2021 regarding Amendments to Law No. 16 of 2004 concerning the Republic of Indonesia Prosecutor's Office, which grants additional authority to the prosecutor to submit a Request for Review, is not in line with the norm of Article 263 § 1 of KUHP as affirmed in Constitutional Court Decision No 33/PUU-XIV/2016. The latter decision stipulates that the prosecutor does not have the authority to submit a Request for Review, and only the convict or their heirs are eligible to do so. According to the Constitutional Court, any different interpretation of Article 263 § 1 of KUHP would lead to legal uncertainty and injustice. Consequently, Article 30C letter h and the explanation of Article 30C letter h of Law No. 11/2021 would not only result in legal disharmony and ambiguity regarding the submission of Review requests. Still, they would also violate the rights to recognition, guarantees, and fair legal certainty guaranteed by Article 28D § 1 of the 1945 Constitution.

2. The Principle of Legal Protection for the Rights of Convicts Through Review. The principle of legal protection for the rights of convicts through review is an extraordinary legal remedy regulated from Article 263 to Article 269 of KUHP. Review is a legal process initiated by convicts or their heirs to seek better justice. The second principle in the review process is the protection of the finality of acquittal and release verdicts, which cannot be appealed, cassated, or sub-

ject to a Request for Review. A Review request should also benefit the convict, and its outcome should not impose a heavier consequence than the original verdict. However, the prosecutor cannot submit a Request for Review unless the convict or their heirs initiate it. The Constitutional Court has established this through Decision No. 33/PUU-XIV/2016, which declared that Article 263 § 1 of KUHP does not have binding legal force as long as it is interpreted differently from the explicit norm.

Since this Constitutional Court decision, prosecutors can no longer submit Review requests. In divorce cases in religious courts, convicts also have rights that need protection, such as the right to attend hearings and participate in all response processes. However, limitations on the defendant's attendance in court hearings can fail to uphold the principle of justice for detainees or inmates in defending their rights in court. Therefore, the government should be present to ensure the fulfilment of the civil rights of detainees or prisoners in correctional institutions.

In pursuing legal remedies for convicts or defendants, extraordinary legal remedies such as cassation examination in the interest of the law and review also manifest the legal function aimed at protecting individuals within society, the nation, and the state. Furthermore, physical and mental well-being and individual rights must also be covered, including fundamental, property, and personal freedoms.

CONCLUSIONS

In judicial review after Constitutional Court Decision No 20/PUU-XXI/2023, the essence of the principle of legal certainty is central to ensuring the integrity and fairness of the legal process. This principle underscores the need for clear and transparent arrangements in judicial review procedures, ensuring that every step is by applicable law. In this context, judicial review must consider human rights, primarily to protect convicted persons from possible violations of their rights. Moreover, public participation in the judicial review is essential to maintain justice and legal expediency. Applying the principle of legal certainty in judicial review after Constitutional Court Decision No 20/PUU-XXI/2023 ensures that the process takes place somewhat measurable and avoids legal ambiguity that could harm the parties involved.

Judicial review by public prosecutors in the context of legal protection of the rights of convicted persons is an important topic to discuss. The Constitutional Court Decision No 33/PUU-XIV/2016 clarified that the Public Prosecutor does not have the authority to file a judicial review in a criminal case. The Constitutional Court emphasised that judicial review is designed to benefit convicts or their heirs, not the state or victims. The norm of Article 30C letter h of Law No 11 of 2021 concerning Amendments to Law No 16 of 2004 concerning the Prosecutor's Office of the Republic of Indonesia, which gives additional authority to the prosecutor to file a Judicial Review, is not in line with the decision of the Constitutional Court and can result in legal uncertainty and injustice. The principle of legal protection of the rights of convicted persons through judicial review is an extraordinary effort to obtain better justice. Still, only convicted persons or their heirs are entitled to apply. In protecting the

rights of convicted persons, it is essential to uphold the principles of justice, protection of individual rights, and the function of law to protect the community, nation and state.

Addressing the intricate issues around the Public Prosecutor's role and convicts' legal protection requires focused legal reforms. Clearly defining the circumstances for Public Prosecutor-initiated Reviews and unwavering adherence to Constitutional Court decisions will ensure balanced authority. Strengthening convicts' access to justice through better representation and communication and public awareness campaigns can empower individuals seeking justice. Lastly, periodic assessments of legal reforms, including the Review process, will maintain alignment with evolving legal and societal needs. In conclusion, strategic reforms can harmonise the Public Prosecutor's role and convicts' legal protection, advancing justice within Indonesia's legal system.

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Legal Implications and Regulatory Formulation of Private Sector Bribery as A Corruption Offense in Indonesia

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Abstract. This article explores the qualification of bribery in the private sector as a criminal offence in Indonesia. No specific positive legal regulation can prosecute individuals involved in private-sector corruption, resulting in a legal vacuum. Criminal law must consider realising a just and prosperous society, and the costs of criminalising such acts (bribery in the private sector) should be balanced with the outcomes to be achieved. Although Indonesia's Law on the Eradication of Corruption (Law No 31 of 1999, as amended by Law No 20 of 2001) lags and is not in line with the United Nations Convention against Corruption, Indonesia should align its national criminal law with UNCAC, particularly Article 21 of UNCAC. By introducing new concepts and formulating provisions regarding bribery in the private sector in the law on the Eradication of Corruption, as well as implementing the Deferred Prosecution Agreement (DPA), it is hoped that future cases of bribery in the private sector in Indonesia can be effectively addressed.

Keywords: Bribery in the Private Sector; Corruption Offenses; UNCAC.

INTRODUCTION

The national legal framework for addressing corruption has long been perceived as insufficient to combat corrupt activities across various countries effectively. The limitations of domestic legal instruments, such as the Anti-Corruption Law in Indonesia, are a prevalent issue worldwide. The United Nations has advocated for a convention rejecting corruption through international collaboration. As a manifestation of this commitment to tackling corruption, the signing of the United Nations Convention Against Corruption (UNCAC) took place on December 9, 2003, in Merida, Mexico, involving 133 nations. UNCAC provides a comprehensive guide for all countries to undertake anti-corruption measures, encompassing prevention strategies, defining corrupt practices, fostering international cooperation, and establishing cross-border asset recovery mechanisms. The provisions of UNCAC reflect the commitment to upholding the rule of law and promoting effective governance.

Indonesia ratified UNCAC in 2006 through Law No 7 of 2006, which signifies implications for tailored legal frameworks to prevent and eradicate corruption within the country [1]. This ratifica-

tion necessitates the adoption of essential norms by Indonesian positive law, emphasising the nation's seriousness in the fight against corruption [2]. However, owing to UNCAC's two-fold nature, encompassing both mandatory and non-mandatory offences, Indonesia retains the right to selectively follow UNCAC's provisions, particularly Article 21, which addresses bribery in the private sector.

One prominent instance of alleged private sector bribery in Indonesia is the PT Interbat case, which surfaced through an investigation conducted by Tempo. PT Interbat is suspected of offering bribes to several hospitals and doctors. Metropolitan Medical Centre (MMC), a private hospital, and its doctors were among the recipients of these alleged bribes. Furthermore, data from a Databoks study conducted by Indonesia Corruption Watch (ICW) reveals that the recorded instances of corruption offenders within the Corruption Eradication Commission (KPK) between 2004 and 2022 amounted to 1,442 individuals. Notably, the highest corruption occurrences were in the private sector, with 372 perpetrators.

Regarding Indonesia's domestic legal framework about corruption, none of the existing regulations, including UNCAC's Article 21, explicitly focus on criminalising private bribery. This gap is evident in laws such as the Amendment to Law No 31 of 1999 on the Eradication of Corruption and Law No 11 of 1980 on bribery. The absence of clear and specific provisions within these regulations has led to this legal vacuum.

This study aims to analyse the challenges posed by enforcing laws against corruption in the private sector in Indonesia. Through an in-depth exploration of existing legal constraints, this research seeks to formulate constructive and sustainable recommendations to address regulatory gaps and enhance preventive and enforcement measures against private-sector bribery. By embracing the principles embodied in UNCAC and drawing insights from the experiences of other nations, it is anticipated that the outcomes of this study will contribute significantly to fostering a clean, fair, and transparent business environment in Indonesia.

METHODS

The research method applied in this article is the normative juridical research method. This method refers to a literature study approach that involves analysing relevant legal literature sources and utilising primary and secondary data as the basis for argument development.

Normative juridical research involves collecting and analysing various legal sources, such as laws, regulations, court decisions, legal documents, academic literature, and articles related to the researched topic. Primary data consists of original legal sources, such as texts of laws and court rulings. In contrast, secondary data encompasses interpretations, analyses, or comments on these primary sources provided by legal experts or researchers.

In this study, the author collects and examines various legal sources related to corruption in the private sector in Indonesia. Primary data, such as corruption and criminal law regulations, as well as relevant court decisions, serve as the legal basis for analysing issues about enforcing laws against bribery in the private sector. Secondary data, such as the views of legal experts or researchers regarding the effectiveness of existing legal instruments, can provide additional insights in formulating more holistic recommendations.

By adopting the normative juridical research method, the author can systematically analyse legal issues related to tackling corruption in the private sector. This approach allows the author to explore relevant legal perspectives, formulate strong arguments, and generate substantial recommendations to enhance the existing legal framework.

RESULTS AND DISCUSSION

Bribery or corruption is a criminal act that often occurs and involves government officials being conducted by business people/private individuals. One of the common forms of bribery is giving gifts, items, or bribes in the form of money. The purpose of bribery is something that can influence decision-making by the person or official being bribed [3]. As a country governed by the rule of law, Indonesia has established regulations related to the crime of bribery. The relevant legislation encompasses:

1. Law No 31 of 1999 concerning the Eradication of Corruption. Bribery under the Corruption Law is regulated in Article 5, § 1 letters a and b, and § 2. Upon dissecting the formulation of this article, one of the elements of the bribery offence consists of the subject of the briber. In Article 5, the phrase "giving or promising something to a public official or state administrator" has not been clearly defined, indicating that this article could potentially be used to prosecute private individuals as active bribe givers or bribe offenders. In contrast, public officials or state administrators would be passive recipients. However, this provision can only be applied if bribery from private individuals is connected to a public official or state administrator. At the same time, if both the active and passive briber are private individuals, the existing national law in Indonesia does not address this situation.

2. Law No 11 of 1980 concerning Bribery. In Indonesia, the criminal offence of bribery is primarily governed by Law No 11 of 1980 concerning corruption. This law explicitly prohibits both giving and receiving bribes. The relevant prohibitions are stated in two articles, Article 2 and Article 3. Although the wording of these provisions does not explicitly refer to public officials as subjects who can be subjected to these provisions, the mention of the term "authority or duty" suggests that individuals involved must possess authority or duties related to public interests. The term-

nology of "authority" in administrative law generally refers to appointed and sworn public officials who can make decisions or carry out actions on behalf of the state.

Nevertheless, the explanation of Article 2 of the Republic of Indonesia Law No. 11 of 1980 concerning bribery clarifies that the term "authority and duty" includes the authority and duty regulated by professional ethics or determined by respective organisations. The explanation in Chapter I of the same law states that enacting this law is necessary to instil a clean and robust national character based on Pancasila. Therefore, bribery in various forms and nature need to be prohibited, with restrictions applied to acts of corruption concerning public interests. Consequently, the subjects governed by the Republic of Indonesia Law No. 11 of 1980 are not limited solely to public officials but also encompass individuals bound by professional ethical codes and those possessing authority within organisations.

The provisions outlined in the Republic of Indonesia Law No 11 of 1980 concerning Bribery and Corruption Law have not been previously applied to legal subjects beyond public officials. If the provisions regarding bribery apply to private individuals, then the private individual would be associated with the public official who receives the bribe. Using criminal sanctions for bribery between private parties (private sector) tends to be enforced against the bribe giver.

The criminal offence of bribery has two distinct dimensions: active bribery, often referred to as the bribe giver, and passive corruption, often referred to as the bribe recipient [4]. Therefore, both the bribe giver and bribe recipient are involved in addressing bribery cases. The suboptimal application of the Republic of Indonesia Law No. 11 of 1980 concerning bribery in handling bribery cases within the private sector is attributed to the broad interpretation of "...concerning public interests," one of the elements in Articles 2 and 3 of the same law. The law's explanation does not limit what constitutes "public interest." The term "public interest" is overly expansive generally and tends to lack boundaries. Public interest can be interpreted as the interests of the nation and state, as well as the interests of the people, considering various aspects of life.

To explain the meaning of public interest, we can refer to language experts' opinions. In this context, Huybers states that public interest relates to

the interests of society with specific characteristics, including concerns about all public resources necessary for civilised living. Soetandyo Wignjo Soebroto presents two meanings for the criteria of general interest:

1. Public interest, in the sense of being the interest of many people, is determined and defined based on the choices and preferences of many individuals, possibly through a somewhat organised or managed process. It may also arise spontaneously, originating from the bottom up.
2. Public interest, in the sense of being a national interest, is decided and defined through a normative and structural process centrally controlled to meet the demands of development planning and engineering.

Based on the explanations from the experts above, a general outline can be drawn to interpret public interest, which is an interest intended and beneficial for many individuals. The public interest mentioned in the phrase "contrary to the authority or duty that concerns public interest" in Law No. 11 of 1980 concerning bribery means that the authority or duty must pertain to the general population [5]. Thus, Articles 2, 3 of Law No 11 of 1980 concerning Bribery cannot be used to prosecute all perpetrators of bribery in the private sector, as economic actors engaging in bribery within economic activities do not establish corporations based on public interest, thereby lacking authority or obligations related to the public interest [6].

1. Implementation of UNCAC Regulations on Private Sector Bribery into Indonesian National Law. UNCAC is an international codification of corrupt practices. This treaty doesn't declare specific acts as international crimes. Still, it obligates participating countries to prosecute or extradite perpetrators of such actions based on national law, as stipulated in Article 30 of UNCAC. The internationalisation of corruption is due to its elements that breach international interests, making it necessary to prevent and suppress it through international criminalisation as one of the appropriate measures.

In the UNCAC background paper, at least six impacts of corruption underlie the internationalisation of corrupt practices. First, corruption is seen as damaging to democracy. Second, corruption is perceived as undermining the rule of law. Third, corruption can disrupt sustainable development. Fourth, corruption is considered detrimental to

markets. Fifth, corruption can deteriorate the quality of life. Lastly, corruption is seen as violating human rights, particularly the right to a decent life for society, which is neglected due to insufficient state budget allocation caused by corruption. A study even explicitly states that corruption is a violation of human rights.

Based on the six impacts of corruption mentioned above, the objectives of UNCAC are as follows:

a) First, to prevent and efficiently combat corruption. Hence, coordination among anti-corruption institutions, including safeguarding and protecting individuals reporting suspected crimes, is essential.

b) Second, international cooperation and technical assistance, including asset recovery. Collaboration extends not only among convention-participating countries but also involves non-state party nations. The establishment of UNCAC has regulated legal technicalities, especially concerning asset recovery, as the basis for international cooperation between countries.

c) Third, promoting integrity, accountability, transparency, and proper management within the public sector.

As a result, the Indonesian government must enhance international cooperation, both bilaterally and multilaterally, with signatory states of The United Nations Convention against Corruption (UNCAC) to trace, freeze, seize, and recover assets from corruption committed abroad. Otherwise, the government would face challenges in tracking and recovering assets that corrupt individuals have taken overseas.

2. Future Criminal Law Policies Regarding Private Sector Corruption in Indonesia. Addressing private sector corruption necessitates renewal through reformulating provisions related to personal sector corruption via criminal law policies. This policy aims to effect change by altering substantive rules, including expanding norms regarding bribery and the elements of private sector corruption, broadening the subjects of the law, and ensuring equal penalties for active and passive bribery, all regulated under a single legislative enactment, the law on the Eradication of Corruption.

This approach aligns with the theory of criminalisation, which transforms an initially non-criminal act into a criminal offence due to its per-

ceived reprehensibility and the need for punishment, considering fundamental societal values and aimed at the community's welfare. Thus, reformulation and new regulations will provide legal certainty, a primary objective of law that embodies justice. Legal certainty is demonstrated through law enforcement actions against actions regardless of the perpetrator. It ensures that individuals can behave according to prevailing laws and vice versa. Without legal confidence, individuals lack a standardised framework for conducting their actions.

Considering the absence of specific regulations on private-sector corruption in the law on the Eradication of Corruption in Indonesia, an effort is required to address this gap through legal reformulation concerning private-sector corruption in Indonesia via the Anti-Corruption Law, which would also involve a comparative study with the United Kingdom [7]. Indeed, it is imperative to regulate private-sector bribery promptly due to the resulting impact, which justifies the criminalisation of private-sector corruption in Indonesia. This is consistent with The Harm Principle, which dictates that an action can be criminalised if it endangers the perpetrator or others or has broad-ranging consequences. Moreover, regulating private sector corruption in relevant legislation aligns with other theories, such as legal moralism, benefit-conferring legal paternalism, and perfectionism. According to these theories, private-sector corruption can be criminalised if the action concerns the state, as it constitutes an immoral act that benefits the perpetrator or others [8].

Suppose we intend to criminalise private-sector bribery according to national law. In that case, it should ideally begin with Article 21 of UNCAC, which has been ratified by Indonesia and reads as follows: "Each state party shall consider adopting such legislative and other measures as may be necessary to establish as criminal offences when committed intentionally in the course of economic, financial, or commercial activities:

The promise, offering, or giving, directly or indirectly, of an undue advantage to any person who directs or works, in any capacity, for a private sector entity, for the person himself or herself or another person so that he or she, in breach of his or her duties, acts or refrains from acting;

The solicitation or acceptance, directly or indirectly, of an undue advantage by any person who directs or works, in any capacity, for a private

sector entity, for the person himself or herself or for another person so that he or she, in breach of his or her duties, acts or refrains from acting."

Article 21 of the United Nations Convention against Corruption doesn't render private-sector bribery a mandatory offence, in layperson's terms. The international agreement doesn't obligate ratifying states to incorporate private-sector corruption as a criminal act through national law. Instead, it only requires consideration. Therefore, based on international law (United Nations Convention against Corruption), as a ratified state, Indonesia doesn't violate any agreement provisions by not incorporating private sector bribery into its national law. From this perspective, the absence of violated provisions in the United Nations Convention against Corruption doesn't imply that Indonesia refrains from criminalising private sector bribery in the law on the Eradication of Corruption. The motivation to criminalise private-sector bribery should be rooted in the harm experienced by Indonesian society due to private-sector corruption [9].

Referring to the comparison outlined in the preceding paragraph and considering all national and international provisions, the proposed model for its formulation in Indonesia in this study is as follows:

1. *Prohibited Acts*. Expanding the clause of bribery norms in the law on the Eradication of Corruption and broadening the formulation elements in the article's wording, one of which is prohibited acts, is closely related to criminal offences. According to criminal law expert Pompe, a strawbale fait, in positive law, is an act considered punishable based on legal formulations that must first be regulated by law.

In detail, the formulation of private sector corruption in the UK includes bribery provisions that, while not distinguishing between public officer and private sector bribery, essentially cover bribery generally (both in the public and private sectors). In this regard, Indonesia should utilise more superficial elements in line with its language conventions but with the same objective: to regulate the act of offering or providing gifts or promises to induce someone, contrary to their authority or duty, to act or refrain from working in a way that breaches good faith. Therefore, "offering or providing directly or indirectly" should create a stereotypical provision. Consequently, all acts falling within this element can be subject to criminal sanctions in the future.

2. *Expansion of Subjects of Law*. The formulation of subjects of law aims to determine perpetrators of criminal acts or individuals to be held accountable for their crimes. Those subject to accountability can be individuals or legal entities per legislative regulations. Indonesia can formulate an expansion of subjects of law similar to the UK, encompassing both individuals and legal entities. Moreover, the UNCAC's regulation is specifically aimed at the economic sector.

Based on the outlined losses resulting from private sector actions, which are more inclined towards the economic sector, Indonesia should criminalise private sector bribery specifically for financial sector recovery. Therefore, Indonesia should create a new formulation that aligns with UNCAC's goal, such as 'any person within an economic activity' covering all individuals or corporations involved in producing or consuming goods and services, with the same objective as regulated by the UNCAC.

3. *Criminal Sanctions*. Criminal law consists of prohibition norms and criminal sanctions. A distinct feature of criminal law is that any prohibited act, when violated, incurs sanctions or criminal penalties. The predominant sanctions or criminal threats used in the law on the Eradication of Corruption are imprisonment and fines. Additional penalties can be applied to Articles 2, 3, 5 to 14. Based on comparisons, the criminal sanctions imposed by the UK under the UK Bribery Act can be used on individuals and legal entities. The regulation regarding individual perpetrators of bribery in the UK is specified in Article 11 of the UK Bribery Act, which stipulates a maximum prison sentence of 10 years and fines. In addition to penalties, corporations can be barred from participating in auctions. Indonesia can reference the criminal sanctions provided in the Bribery Law, which entails a minimum prison sentence of 1 year and a maximum of 5 years or a fine ranging from a minimum of IDR 50,000,000 to a maximum of IDR 250,000,000.

Based on the formulation outline derived from the application of private sector bribery elements in the UNCAC and the UK, a suitable norm formulation for private sector bribery to be applied in future Indonesia is as follows:

1. Any person within an economic activity who directly or indirectly offers or provides something to an individual occupying any position in the private sector, intending to influence them to

act or refrain from acting contrary to their authority or duty.

2. Any person within an economic activity who directly or indirectly requests or receives something, knowing or reasonably suspecting that the giving of such thing or promise is intended to influence them to act or refrain from acting contrary to their authority or duty.

3. Acts, as mentioned in §§ 1, 2, are subject to a minimum prison sentence of 1 year, a maximum of 5 years, and/or a fine ranging from a minimum of IDR 50,000,000 to a maximum of IDR 250,000,000.

4. Acts as stated in §§ 1, 2 may incur additional penalties.

Furthermore, the Indonesian criminal justice system should consider adopting Deferred Prosecution Agreements (DPA). This aligns with the law enforcement model against corruption, aiming to recover state losses due to crime and considering the reduction of penalties for suspects or defendants. The principle of opportunity in the Indonesian law enforcement model still does not accommodate provisions present in the UNCAC [10].

In implementing DPA in Indonesia, the following aspects should be considered:

1. The DPA applied in Indonesia should consider the judicial system within its constitutional structure and legal tradition. Regulatory and compliance burdens for corporations, involving additional costs, must be addressed.

2. Crimes eligible for the DPA mechanism include serious crimes (but are not limited to them), necessitating the establishment of specific laws governing this matter.

3. DPAs should apply solely to corporations, presenting an opportunity for preventive effects and potential prosecution of employees (company personnel). However, if limited to corporations, individuals who have committed offences might be discouraged from reporting due to fear of prosecution.

4. The judiciary's role is crucial in DPA implementation, enhancing trust.

5. DPAs should balance building public trust while pursuing fraudulent corporations.

6. The Indonesian DPA scheme may require agreements for public interest that are fair, reasonable, and proportional.

7. Clear guidelines on DPA negotiation and effective oversight mechanisms are necessary.

These considerations are essential for implementing DPA in Indonesia to ensure justice, legal certainty, and legal benefits while minimising potential conflicts of interest.

The success of combating corruption depends on the effectiveness of law enforcement, both abstract and concrete. Abstract Law enforcement involves substantive rule reform and integrating penal and non-penal efforts. Using non-penal measures aims to eliminate factors conducive to crime, creating an environment responsive to crime eradication.

CONCLUSIONS

In conclusion, implementing UNCAC within member states' legal frameworks, including Indonesia, is justified and imperative. Its designation as an international crime, combined with Indonesia's deliberate ratification and adherence to overarching principles of international law, underscores the necessity of integrating its provisions into the national legal system. The convention's self-executing nature and complementary role alongside domestic criminal law further fortify its applicability. Additionally, the pressing need to combat private sector bribery, as evidenced by high-profile cases and the undeniable societal harm it inflicts, underscores the importance of criminalising such acts. By balancing the costs and benefits of criminalisation and considering international standards set by UNCAC, Indonesia can pave the way for a more just and prosperous society. To this end, aligning its legal framework, particularly within private-sector bribery, with UNCAC's provisions will bolster the country's anti-corruption efforts and enhance its criminal justice system.

In a broader sense, the convergence of international and national efforts in combating corruption, specifically within the private sector, holds the potential to reshape Indonesia's socio-economic landscape. A culture of integrity and ethical conduct can take root by redefining societal norms and expectations by criminalising private-sector bribery. The pivotal role of UNCAC, backed by global consensus and the commitment of member states, offers a roadmap towards curbing corruption's pervasive influence. The journey towards a corruption-free society requires legal amendments and proactive preventive measures,

acknowledging the need for a comprehensive strategy. With a strengthened legal framework, stringent enforcement, and a proactive approach to prevention, Indonesia can pave the way for sustainable development, transparency, and accountability. As Indonesia positions itself as a staunch advocate against corruption, the synergy between UNCAC and national efforts will undoubtedly shape a brighter future for the country and its citizens.

As a recommendation to the House of Representatives and the President, we propose that an adjustment be promptly made to the Anti-Corruption Law to accommodate the principles of the United Nations Convention against Corrup-

tion (UNCAC), mainly focusing on addressing private sector bribery. This step is crucial to ensure legal clarity, enhance law enforcement effectiveness, and bring Indonesia closer to international standards in combating corruption. Additionally, we strongly encourage serious consideration of implementing Deferred Prosecution Agreements (DPA) as an alternative solution for handling cases of private-sector bribery. Adopting DPA could provide flexibility and efficiency in legal resolution while maintaining public interest and principles of justice. By taking these measures, Indonesia can strengthen its legal system, build public trust, and become a model for sustained anti-corruption efforts.

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The Meaning of the Phrase "Degrading Act" in the Criminal Offense of Insulting the President or Vice President

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Abstract. This study examines Law No 1 of 2023 concerning the Indonesian Criminal Code, mainly focusing on the provision regarding the insult of the President and/or Vice President in Article 218, paragraph 1. The research employs a normative juridical approach, explicitly analyzing the grammatical interpretation of the phrase "Degrading Act". The findings indicate that the "Degrading Act" encompasses actions that disrupt judicial processes, threaten judges, and insult the judiciary. This includes defacement, writing, drawing, or damaging national symbols, even when such actions deviate from their intended form, size, or colour. Notably, the study demonstrates that the categorization of the "Degrading Act" extends beyond mere legal definitions, encompassing considerations of societal propriety. By providing a comprehensive analysis of the legal and societal dimensions of insulting state leaders, this research contributes to a more nuanced understanding of the evolving legal landscape in Indonesia. Furthermore, the study offers a clearer understanding of the legal aspects concerning insults towards state leaders and contributes to the changing legal landscape in Indonesia.

Keywords: Degrading Act; Meaning; President; Vice President.

INTRODUCTION

Human Rights (HR) hold an indomitable place within individual entitlements that cannot be overlooked [1]. They are an inherent and universal attribute, extending their reach beyond geographical boundaries and diverse demographics. These rights, accessible to all individuals irrespective of their background, serve as an unequivocal shield against the encroachment of others. Rooted deeply within the essence of human existence, they play a pivotal role in safeguarding personal integrity and shaping the moral bedrock that underpins societal interactions [2].

While the term "Human Rights" might not be explicitly stated within Indonesia's Constitution, the foundational document, the 1945 Constitution (pre-amendment), enshrines a framework of rights and duties for citizens and residents alike [3]. Although not explicitly labelled as "Human Rights," this framework encompasses the quintessence of these rights, underscoring their significance within the national legal landscape.

This framework entails several critical dimensions of Human Rights, as manifested in different articles: Article 27 § 1 guarantees the "equality of position and obligation of citizens within the law and government"; Article 27 § 2 emphasizes "the right of each citizen to pursue meaningful work and secure livelihoods"; Article 28 ensures the fundamental right to "freedom of association, assembly, and expression, as stipulated by law"; Article 28 § 1 assures "the essential freedom to practice one's religion, safeguarded by the state"; Article 31 § 1 underscores the pivotal "right to education."

A crucial aspect of Human Rights, freedom of expression, is also anchored within Indonesia's Constitution. Article 28 and Article 28E § 3 affirm the sanctity of this right, proclaiming Article 28: "freedom to associate, assemble, express thoughts through speech and writing, and other means, as stipulated by law." Article 28E § 3: "Everyone possesses the entitlement to form associations, assemble, and voice opinions."

This right to freely express thoughts is further enshrined in the Universal Declaration of Human Rights (UDHR) in Article 19, unequivocally stating: "Every individual has the right to freedom of opinion and expression, including the liberty to hold opinions without interference and to seek, receive, and impart information and ideas through any media and regardless of frontiers".

However, the recent enactment of Law No 1 of 2023 on the Criminal Code (KUHP) has spurred a wave of concerns, particularly concerning the revival of provisions related to the insult against the President and/or Vice President, as articulated in Article 218 § 1. The article stipulates penalties for "publicly attacking the honour or dignity of the President and/or Vice President". While the language is clear, it raises queries about what constitutes an "attack" on honour or dignity.

Though the explanatory notes of Article 218 § 1 provide some elucidation, the phrase "attacks the honour or dignity" remains subject to interpretation. The challenge lies in deciphering the breadth of actions under this umbrella. The need for clarity is evident, as a nebulous understanding could lead to inconsistent enforcement, leaving room for diverse perspectives from law enforcement entities.

Therefore, this research aims to investigate the complex relationship between the enactment of Law No. 1 of 2023 on the Criminal Code (KUHP) and the fundamental human right of freedom of expression. Through a comprehensive review of legal provisions, case law, and scholarly discourse, this research aims to provide a nuanced understanding of how the revived condition on Insulting the President and/or Vice President in Article 218 § 1 of the Criminal Code impacts the delicate balance between safeguarding individual dignity and upholding the essential right to express opinions freely. By highlighting the potential implications and challenges posed by this legal development, this study seeks to contribute to the ongoing dialogue around the complex relationship between law, human rights, and the evolving socio-political landscape in Indonesia.

Theoretical Basis

Legal Analysis and Interpretation. The core element of the framework involves an intricate legal analysis of Law No. 1 of 2023, specifically Article 218 § 1 concerning the insult of the President or Vice President. This entails meticulously examin-

ing the provision's language, structure, historical context, and legislative intent [4]. By delving into legal commentaries, case law, and relevant scholarly discourse, this component aims to uncover the underlying legal implications, potential ambiguities, and precedents related to the "Degrading Act."

Linguistic and Grammatical Interpretation. The framework integrates a linguistic analysis to decipher the semantics and nuances of the "Degrading Act." This component involves a granular examination of the phrase's grammatical construction, syntax, and linguistic connotations [5]. By leveraging linguistic expertise, the study aims to unveil the diverse interpretations and potential shades of meaning that the term may encompass.

Societal Perception and Impact. The framework acknowledges the importance of societal perspectives and reactions to the "Degrading Act." This involves comprehensively examining public opinions, media discourse, and stakeholder viewpoints regarding the provision's reintroduction [6]. By capturing diverse societal voices, the study aims to shed light on the broader implications of public discourse, political engagement, and democratic culture.

However, this study provides a nuanced understanding of the legal, linguistic, and societal dimensions surrounding the "Degrading Act." Ultimately, this research seeks to contribute to a deeper appreciation of the evolving legal landscape and its implications within the Indonesian context.

METHODS

This research employs the method of normative legal analysis, utilizing various research approaches, including the statute approach and the conceptual approach [7]. The statute approach involves analyzing rules and regulations related to the issue under study, specifically concerning the criminal offence of insulting the President and/or Vice President. On the other hand, the conceptual approach provides an analytical perspective on problem-solving in legal research, considering legal concepts that underlie it and the values embedded in the norms of regulation about the utilized ideas [8]. This approach draws from evolving legal viewpoints and doctrines.

Secondary legal sources for this study include Article 218 § 1 of Law No. 1 of 2023 concerning

the Indonesian Criminal Code (KUHP). The legal analysis in this study is conducted through grammatical interpretation, which entails interpreting the words of the law according to both linguistic and legal grammatical rules and principles.

RESULTS AND DISCUSSION

Revisiting the Historical Emergence of the Criminal Offense of Insulting the President and/or Vice President. Before the Constitutional Court Decision No. 013-022/PUU-IV/2006, Indonesia regulated the crime of insulting the President and/or Vice President in Articles 134, 136 and 137 of the old Criminal Code (KUHP), which was derived from the Dutch Wetboek van Strafrecht (WvS). Subsequent amendments incorporated These provisions into several statutory regulations in the former Criminal Code. The phrase "President and/or Vice President" replaces the Dutch rulers, namely the queen or governor-general and the Dutch rulers in the Dutch East Indies.

However, this regulation was brought to Judicial Review at the Constitutional Court (MK) and declared unconstitutional due to causing legal uncertainty and susceptibility to multiple interpretations. This uncertainty raised questions about whether protests, expressions of opinion, or thoughts constitute criticism or insults towards the President and/or Vice President. Constitutionally, this contradicted Article 28D § 1 of the 1945 Constitution, which unequivocally states that "the right to recognition, guarantees, protection, and fair legal certainty as well as equal treatment before the law" should be ensured. It also has the potential to hinder communication efforts and the acquisition of information guaranteed by Article 28F of the 1945 Constitution. The previous articles, 134, 136 bis, and 137 of the Indonesian Criminal Code, could potentially hinder the freedom of expressing thoughts through speech, writing, or expression when law enforcement agencies always employ these articles against protest moments in public spaces. This is constitutionally inconsistent with Articles 28, 28E §§ 2, 3 of the 1945 Constitution.

The revival of the offence of insulting the President and/or Vice President is reinstated under Article 218 of Law No. 1 of 2023 concerning the Indonesian Criminal Code (KUHP). The reintroduction of this offence is based on several reasons:

1. The legal interest or fundamental value to be protected by the offence of insult is "human dignity," a universal value highly upheld.
2. Insult, by its nature, is a highly reprehensible act (considering moral, religious, societal, and human rights values), as it attacks and degrades human dignity (a universal value). As such, it is theoretically perceived as "rechtsdelic," "intrinsically wrong," "mala per se," and thus prohibited (criminalized) in various countries.
3. Determining the scope of types of insult offences can vary for each society or country, including criminal policy and social policy issues closely tied to each nation's socio-philosophical, socio-political, and socio-cultural values.
4. The scope of insult includes ordinary individuals, specific individuals (engaged in religious activities, religious officials, judges, officials, symbols, state institutions (flags, national anthems, state emblems), government officials, President/Vice President including those from friendly countries, sacred symbols/institutions/substances (God, divine word and attributes, religion, messengers, prophets, holy scriptures, religious teachings, or religious practices), and even deceased individuals.
5. It seems peculiar that insults against ordinary individuals, deceased individuals, flags/national anthems, state emblems, officials/public servants, and heads of friendly states are deemed offences. In contrast, insults against the President, whose status/position/role/duty/function is distinct from ordinary individuals, appear different from a sociological, legal, and constitutional perspective.
6. As the President's status/position is inherently different from that of ordinary individuals, it is unsuitable to confront this issue with the principle of "equality before the law." If questioned as such, all differences in types of criminal offences based on distinct status/qualification (such as various forms of insult, murder, assault, etc.) would need to be eliminated, as it would be considered contradictory to the principle of "equality before the law."

Considering the elucidation of the reasons behind the reintroduction of the offence of insulting the President and/or Vice President in the academic discourse, the main objective of establishing provisions regarding the criminal offence of attacking the dignity and status of the President

and/or Vice President is fundamentally to protect their honour and dignity.

Meaning of the Phrase "Degrading Act"

1. Based on a Linguistic Perspective. The Kamus Besar Bahasa Indonesia (KBBI) defines "Perbuatan" as an action or deed, while "merendahkan" means to belittle or demean someone. The KBBI does not explicitly outline the steps or acts encompassed by the term "perbuatan merendahkan." However, combining the definitions of "perbuatan" and "merendahkan" results in an action or deed that belittles or demeans others. The lack of further explanation leads to varying societal interpretations, which consequently lacks a clear benchmark for evaluating the phrase "perbuatan merendahkan" itself.

This ambiguity can significantly impact the legal landscape in Indonesia, as prevailing legislation regulates the phrase "perbuatan merendahkan." Without a clear definition in the Kamus Besar Bahasa Indonesia (KBBI), regulations about "perbuatan merendahkan" must provide explicit, clear, and rigid explanations regarding which actions or deeds fall within the scope of "perbuatan merendahkan."

2. Based on Regulation of the Indonesian Judicial Commission No. 8 of 2013 on Judicial Advocacy. The Judicial Commission issued Regulation No. 8 of 2013 on Judicial Advocacy to safeguard the dignity and honour of judges. In this regulation, the concept of "perbuatan merendahkan" (degrading act) towards the satisfaction of a judge is elaborated in Article 1 No 2, which states:

"The Degrading Act towards the Dignity of a Judge is an act by an individual, a group of individuals, or a legal entity that disrupts the court process or the judge in examining, adjudicating, deciding cases, threatens the security of the judge within or outside the court, and insults the judge and the court."

As described above, Article 1 No 2 of the Judicial Commission's regulation clarifies that a "perbuatan merendahkan" that makes a judge feel demeaned is an act by an individual or group that disturbs the trial process, threatens or insults the judge, both within and outside the court. This is notably different from the provisions of Article 218 § 1, especially the explanation part, which does not specify in detail the actions that can be categorized as "perbuatan merendahkan" causing the dignity and honour of a President and/or Vice President to feel demeaned.

3. Based on Article 236 of Law No. 1 of 2023 concerning the Indonesian Criminal Code (Insult to State Symbols). The State Symbol of the Republic of Indonesia is the Garuda Bird, which is often subject to domestic and international conflicts. Indonesia has enacted several favourable laws governing sanctions related to insulting the symbol to protect the State Symbol. These include Law No 24 of 2009 concerning the Flag, Language, and State Symbol of Indonesia and Law No 1 of 2023 concerning the Indonesian Criminal Code (KUHP), specifically in Article 236.

Article 236 of Law No. 1 of 2023 concerning the Indonesian Criminal Code states: "Anyone who defaces, writes on, draws, damages, or misuses the State Symbol with the intent to tarnish, insult, or demean the honour of the State Symbol shall be punished with imprisonment for a maximum of 3 (three) years or a fine of the highest category IV." It clarifies what actions fall under insulting or "perbuatan merendahkan" the honour of the State Symbol, such as: "Actions in the form of defacing, writing on, drawing, damaging the State Symbol, including using it in a manner inconsistent with its form, size, colour, and proportion, carried out intentionally or intending to insult or demean its honour."

Article 236 explicitly outlines actions that constitute "perbuatan merendahkan" towards the dignity of the State Symbol. This stands in stark contrast to the provisions of Article 218 § 1 concerning the Criminal Offense of insulting the President and/or Vice President, which does not provide a detailed explanation of the actions categorized as "perbuatan merendahkan" that could demean the dignity and honour of a President and/or Vice President.

4. Based on the nature of the offence. Characteristics of Unlawfulness in Criminal Law are theoretically divided into two doctrines: formal unlawfulness and substantive unlawfulness. Unlawfulness is one of the elements of a criminal act, representing an objective assessment of an action and not of the actors themselves.

a) Formal Unlawful Act. According to this doctrine, an act is classified as unlawful if it contradicts statutes and regulations, meaning the formal unlawfulness of an action can only be negated by justifications formulated within the legal framework. Thus, under this doctrine, unlawfulness is synonymous with contradicting or being against the law (written law). Consequently, the unwritten rule holds no place in criminal law.

b) Substantive Unlawful Act. The doctrine of substantive unlawful acts acknowledges the existence of unwritten law alongside statutes and regulations (written law). This doctrine states that unwritten law can be used as a basis to qualify an act as unlawful. Substantive Unlawful Act refers to actions that are or are not banned, as provided by written law and based on unwritten legal principles. The unlawfulness of acts that fall clearly within the definition of a specific offence can be erased based on legal provisions and unwritten rules (über Gezetlich). According to this doctrine, unlawfulness is against written and oral laws, including social norms.

As an integral part of criminal law, albeit not explicitly regulated, substantive unlawful acts are recognized in Indonesia. The regulation of substantive unlawful acts within Indonesian criminal law can be understood based on the function of substantive illegal acts.

From the meaning of the characteristics of unlawfulness above, the Degrading Act also falls under substantive unlawful acts, where forms of degrading acts are not only defined by written law but also considered societal norms.

However, it's important to note that the acts mentioned above do not constitute a criminal offence when carried out for public interest while expressing opinions or criticisms of policies by the President and/or Vice President which are perceived as not beneficial or potentially harmful to society because it is already stated in Article 218 § 2.

The intention of "Perbuatan Merendahkan" (Degrading Act), as mentioned in Article 218 § 1, is to belittle the President and/or Vice President in a personal context or to attack their character.

Another essential aspect to know about the Criminal Offense of Insulting the President and/or Vice President is that it is a complaint-based offence, as stated in Article 220 of Law No. 1 of 2023 concerning the Indonesian Criminal Code: "1) Criminal offences as referred to in Article 218

and Article 219 can only be prosecuted based on a complaint; 2) the complaint as intended in § 1 can be made in writing by the President and/or Vice President".

Therefore, only the President and/or Vice President, as the protected subjects of Article 218, can report the perpetrators of the Criminal Offense of Insulting the President and/or Vice President. It does not become an issue if the President and/or Vice President do not feel offended or demeaned in their dignity.

CONCLUSIONS

In conclusion, "Degrading Acts" based on several written rules are acts of individuals, groups of people or legal entities that interfere with the court process or judges in examining, adjudicating, deciding cases, threatening the security of judges inside or outside the court, insulting judges and courts and crossing out, writing, drawing or scribbling, damaging the State's symbol, including using it not by its shape, size, or colour.

Based on the nature of the tort, "Degrading Acts" are included in material tort where the forms of "Degrading Acts" are not only seen from the acts contained in the law but also see whether the acts are in accordance or not with the values of decency in society such as violations of propriety, prudence and accuracy.

The government is expected to improve and perfect the provisions of Article 218 § 1 of Law No 1 of 2023 related to the Criminal Offense of Attacking the Dignity of the President and/or Vice President so that with clear boundaries related to acts classified as "Degrading Acts" of the President and/or Vice President will provide legal certainty in addition to law enforcement officials. But it will also be a certainty for the public so that they know what actions are classified as degrading the dignity of the President and / or Vice President.

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Juridical Analysis of the Making of Business Rights Deeds in Electronic Forms

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Abstract. This study aimed to find out and analyse the arrangement of the usufructuary deed in the form of an electronic certificate, the procedures for making the usufructuary deed in the form of an electronic certificate, and the strength of the usufructuary certificate electronically. This research is normative legal research with a statute and conceptual approach. Based on the results of the study, First, the arrangement for the deed of usufructuary rights in the form of an electronic certificate is contained in Law No 11 of 2020 concerning Job Creation, PP No 1 Year 2021 concerning Management Rights, Land Rights, Flats Units, and Land Registration, Permen ATR/Head of BPN No 1 of 2021 concerning Registration of ATR/Head of BPN Certificates and Regulations No 18 of 2021 concerning Procedures for Determining Management Rights and Land Rights. Second, the procedure for making a usufructuary deed as an electronic certificate starts from the file preparation, measurement, and submission stage to establishing management rights in the electronic certificate. Third, the legal power of the electronic usufructuary certificate includes the administration of Proof, certainty, and legal protection, which is recognised in the Job Creation Law, the ITE Law and contained in PP No 18 of 2021 and ATR/Head of BPN Regulation No 1 the Year 2021.

Keywords: Cultivation Rights; Electronic Certificates; Business Rights.

INTRODUCTION

The development of computer technology and communication technology has had a fundamental change in the movement of people's lives. This also has a widespread influence on procedures for implementing legal interest relationships. This condition was strengthened after the outbreak of COVID-19 in 2019, which forced individual, community, and administration relations to be based on the application of technology.

As an instrument of human life, law is required to respond with a progressive movement to deal with various situations in the development of society. One important and urgent thing is making a deed as the basis for the right to use electronic-based technology capabilities while still having the power and legal certainty.

Electronic contracts have developed in various areas, including in the public service system by the government. This can be seen with the government's innovations in public services and

administrative procedures, for example, electronic contracts in the procurement of goods/services in government projects.

Law No 11 of 2008 concerning Information and Transactions Electronics has regulated mechanisms for electronic signatures, where everyone can use the signed electronic signature (e-signature) supported by a service provider electronics certification.

The government has issued Government Regulation No 18 of 2021 concerning Management Rights, Land Rights, Flats Units, and Land Registration, which explains the provisions regarding Land Registration, which in this case are contained in Article 84 in the first point, which reads "the implementation and implementation of Land Registration can be electronic". Furthermore, the occurrence of usufructuary rights in Article 23 explains that:

1) The usufructuary rights on State Land are granted with the Minister's Decision to grant requests.

2) The usufructuary right over the Land of Management Right is granted with a decision to give the request by the Minister based on the approval of the holder of the Management Right.

3) The §§ 1, 2 decisions can be made electronically.

However, the Electronic Certificate program has loopholes for abuse of authority. Based on the description of the background of the problem above, the focus of the discussion in this study is: First, how do we arrange the deed of business use rights in the form of an electronic certificate? Second, what is the procedure for making a usufructuary deed as an electronic certificate? Third, how strong is the certificate of business use rights electronically?

METHOD

This type of research is normative research conducted on legal principles, legal principles in the sense of values (norms), concrete legal regulations, and the legal system, which are related to the material under study. Normative legal research is also called doctrinal [1]. In this type of research, the law is conceptualised as what is written in laws and regulations (law in books) or as rules or norms that are benchmarks for human behaviour that are considered appropriate [2].

The method used is the statute and conceptual approaches [2]. The types and sources of legal materials needed are primary, secondary, and tertiary. Primary Legal Materials include the 1945 Constitution of the Republic of Indonesia [3], the Basic Agrarian Law [4], the ITE Law [5, 6], Law No 11 of 2020 concerning Job Creation [7], Government Regulations [8–12] and the Book of Laws Civil. Secondary legal materials are obtained from official documents or data, textbooks, journals, research results, legal and scientific research reports, and tertiary legal materials, namely those that provide instructions and explanations of primary and secondary legal materials.

RESULTS AND DISCUSSION

Arrangement of Deed of Business Use Rights in the Form of Electronic Certificates. Registration ground has switched to function electronically. This method was carried out as a form of adjustment to the provisions for land registration in

PP No 24 of 1997 concerning Land Registration, which has been renewed through Government Regulation No. 18 of 2021 concerning Management Rights, Land Rights, Flats Units, and Land Registration.

Regarding the electronic system in land documents, PP No 24 of 1997 concerning Land Registration has at least included provisions relating to storage. Article 35 § 5 states that land registration data is gradually stored and presented using electronic equipment and microfilm. Then, § 6 confirms that the recorded documents produced by electronic devices or microfilm, as referred to in § 5 have the power of Proof after being signed and stamped by the Head of the Land Office concerned.

There has been a Regulation of the Minister of Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions for the Implementation of Government Regulation No 24 of 1997 concerning Land Registration and amended by Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia concerning Amendment Second, on the Regulation of the State Minister for Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions for the Implementation of Government Regulation No 24 of 1997 concerning Land Registration.

The introductory provisions on usufructuary rights in the Job Creation Law have changed Indonesia's scope of usufructuary rights. The implementing regulations for the Copyright Law then detail the arrangements in Law No 11 of 2020 concerning Job Creation as described in the previous chapter.

In addition to these provisions, the Job Creation Law also regulates the existence of electronic documents as in the requirements of the chapter on the implementation of government administration that the performance of government administration of Electronic Decisions is Decisions made or conveyed by using or utilising electronic media.

The provisions of Article 38 describe that Government Officials and/or Agencies can make Electronic Decisions. Electronic Decisions must be made or submitted to Decisions processed by an electronic system determined by the Central Government. If a decision is made in electronic form, no written determination is made.

PP No 18 of 2021 then regulates further descriptions, and Permen ATR No 18 of 2021 governs the mechanism from submission to issuance.

Then, explicitly, the provisions for electronic certificates have been regulated in the Regulation of the Minister of Agrarian Affairs/Head of BPN, starting from the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia concerning the Second Amendment to the Regulation of the Minister of Agrarian Affairs/Head of the National Land Agency No 3 of 1997 Concerning the Implementation Provisions for Government Regulation No 24 of 1997 concerning Land Registration, until finally the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia No 1 of 2021 concerning Electronic Certificates.

Electronic Certificates Viewed from Legislation. Normatively, provisions regarding the use of electronic systems in the field of land management began to be contained in Government Regulation No 24 of 1997 concerning Land Registration and technical requirements in the Regulation of the State Minister for Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions for Implementing Government Regulation No 24 of 1997 concerning Land Registration.

Explicitly, the provisions for electronic certificates have been regulated in the Regulation of the Minister of Agrarian Affairs/Head of BPN, starting from the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia concerning the Second Amendment to the Regulation of the Minister of Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions Implementation of Government Regulation No 24 of 1997 concerning Land Registration, until finally the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of the Republic of Indonesia No 1 of 2021 concerning Electronic Certificates.

ATR Candy No 1 of 2021 concerning Electronic Certificates states that electronic certificates are issued through the Electronic System as Electronic Documents. Furthermore, Article 2, namely:

- 1) Land registration can be carried out electronically;
- 2) The implementation of electronic land registration, as referred to in § 1, includes:
 - a. Land registration for the first time;
 - b. Maintenance of land registration data.
- 3) Land registration, as referred to in § 2, is carried out through an electro-system

In addition to sectoral provisions in agrarian or land affairs, in general, Law No 11 of 2008 concerning Electronic and Transaction Information (UU) relates to electronic certificates, namely that there is a provision: "Electronic Certificates are all forms of things that contain and are contained in an Electronic certification and strengthened by signatures in the electronic record, especially showing data and identity to the status of legal subjects for the parties in it which in this case is organised by the party authorised to carry out the implementation, namely parties or legal entities that are experts in validating and auditing Electronic certificate data.

Implementation of Electronic Land Registration Article 84 of Law No 11 of 2008 concerning Electronic and Transaction Information stipulates:

- 1) Implementation of land registration can be done electronically;
- 2) The results of the implementation and implementation of electronic Land Registration, as referred to in § 1, are in the form of data, electronic information, and/or electronic documents;
- 3) Electronic data and information and/or printouts are valid legal evidence;
- 4) Electronic data, information, and/or printouts, as referred to in § 3, are an extension of valid evidence by the procedural law in force in Indonesia;
- 5) The implementation of electronic Land Registration is carried out in stages by considering the readiness of the electronic system built by the Ministry.

Meanwhile, according to the Regulation of the Minister of Land, in this case regarding Certificates, namely the provisions of the Ministerial Decree of ATR/Head of BPN No 1 of 2021 concerning Land Registration, reads: "Documents in electronic form, commonly known as certificates, are then referred to as electronic certificates".

Implementation of Electronic Certificates according to Articles 13 and 14 of Law No 19 of 2016 concerning Electronic Transaction Information, namely:

- 1) Electronic Certification is applied to Electronic signatures and utilising the operator's services;
- 2) Electronic Certification must be the same as the Electronic signature according to the original owner;
- 3) Every party involved in the Electronic Certification program must be from within the country and foreign operators. Foreign operators must have experience and must be registered in Indonesia;
- 4) Government Regulations will become a reference in the process of implementing Land Registration.

Cultivation Rights in Ministerial Regulations and Arrangements for the Form of Electronic Certificates. Provisions for electronic systems, previously contained in Government Regulation No 24 of 1997 concerning Land Registration, but limited to storage. Regarding the electronic system in land documents, PP No 24 of 1997 at least included provisions relating to storage. Article 35, § 5 states that land registration data is gradually stored and presented using electronic equipment and microfilm. Then, § 6 confirms that the recorded documents produced by electronic devices or microfilm, as referred to in § 5, have the power of Proof after being signed and stamped by the Head of the Land Office concerned.

Provisions for electronic registration and electronic form documents were then developed in ministerial-level conditions. There was already a Regulation of the State Minister for Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions for the Implementation of Government Regulation No 24 of 1997 concerning Land Registration and amended by Regulation of the Minister of Agrarian Affairs and Administration Space/Head of the National Land Agency of the Republic of Indonesia regarding the Second Amendment to the Regulation of the State Minister for Agrarian Affairs/Head of the National Land Agency No 3 of 1997 concerning Provisions for Implementing Government Regulation No 24 of 1997 concerning Land Registration, and finally, with the Regulation of the State Minister of Agrarian Affairs/Head of the National Land Agency No 1 of 2021 concerning Electronic Certificates.

Referring to Minister of ATR/Head of BPN Regulation No 7 of 2016 concerning the Form and Content of Land Certificates regulates this. As stipulated in Article 2 it states, "Land registration is carried out using a land activity computerised system (KKP)". KKP uses an electronic system as a systemic, integrated application that can be used with or without a network and can be automatically synchronised.

ATR Candy No 1 Year 2021, regarding Electronic Certificates, further confirms that certificates of usufructuary rights for state land and management rights can be made electronically. The provisions of Article 2 state that:

- 1) Land registration can be carried out electronically;
- 2) The implementation of electronic land registration, as referred to in § 1 includes:
 - a. Land registration for the first time;
 - b. Maintenance of land registration data.
- 3) Land registration shall be carried out through an electronic system, as referred to in § 2.

Provisions of ATR Regulation No 1 Year 2021 regarding Electronic Certificates above emphasise electronic certificates, which describe the range of forms, administration, issuance for the first time and data Maintenance.

Brake. Article 3

- 1) The results of implementing electronic land registration are data, electronic information and/or electronic documents.
- 2) Electronic information and/or Electronic Documents, as referred to in § 1, are data of right holders, physical data and juridical data of valid land parcels and their authentication is maintained.
- 3) All Data, information and/or Electronic Documents are stored in the Electronic System Data Base.

Administration. Article 4

- 1) The operation of the Electronic System, as referred to in Article 2 § 3 is carried out reliably, safely and responsibly for the operation of the Electronic System.
- 2) The implementation of the Electronic System for the performance of land registration includes:
 - a. Data collection.

b. Data processing.

c. Data presentation.

3) The results of the implementation of the Electronic System, as referred to in § 2, are in the form of Electronic Documents, in the form of:

a. Electronic Documents issued through Electronic Systems and/or

b. Documents that are transferred from media to become Electronic Documents.

4) Electronic Documents issued through the Electronic System, as referred to in § 3 letter a, are legalised using Electronic Signatures by the provisions of the laws and regulations.

5) Electronic Documents resulting from media transfer, as referred to in § 3 letter b, are validated by the authorised official or appointed official and given a digital stamp through the Electronic System.

Publishing for the First Time. Article 6. The issuance of an e-certificate for the first time is carried out through:

a. First-time land registration for land that has not been registered;

b. Replacement of certificates with e-certificates for registered land

Data Maintenance. Article 17. The Electronic System carries out any changes to physical data and/or juridical data on land parcels issued e-certificates.

Based on the provisions of Permen ATR No 1 Year 2021 regarding Electronic Certificates, the use of electronic certificates in the land system is being strengthened again. The latest Permen ATR described above also describes the range of forms, administration, and issuance for the first time and data Maintenance.

In addition to the Minister of Environment regulations, electronic certificates are then found in the derivatives of the Job Creation Law, namely PP No 18 of 2021, concerning Management Rights, Land Rights, Flats Units and Land Registration, emphasising aspects of electronic certificates.

Based on the amended provisions in the Job Creation Law and PP No 18 of 2021, the primary form of usufructuary rights is a decision by a state administration official. This is based on the right to cultivate granted by the state as a form of land rights management. Decisions of state ad-

ministration officials no longer need to be strengthened by deeds because decisions have the same solid legal basis.

Cultivation rights in the form of electronic certificates in PP No 18 of 2021, as well as Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency No 18 of 2021 concerning Procedures for Determining Management Rights and Land Rights, as mentioned above, have regulated recognition of the use of electronic systems. Submit applications for management rights or land rights as regulated in Article 23 and Article 24, then hold recommendations in electronic documents.

Article 24:

1) The application, referred to in Article 23, can be submitted through an electronic system provided by the Ministry.

2) If the application file is in the form of an electronic document issued by the competent authority, the electronic document can be accessed through an integrated electronic system.

Next, determining the right to manage cultivation rights is also regulated electronically. Article 35 states that submission of application documents to the Minister can be done through an electronic system provided by the Ministry. If the request is made through an electronic system, the application file for management rights is physically kept at the Land Office.

In addition, Article 57 regulates decisions on granting rights. In cases where decisions on granting property rights are the authority of the Head of the Regional Office, the Head of the Land Office submits the application file to the Head of the Regional Office. The Minister's source, namely the application file, is presented to the Minister by the Head of the Land Office, with a copy sent to the Head of the Regional Office. These provisions can be submitted through an electronic system provided by the Ministry, and the physical application files are kept at the Land Office.

Furthermore, the regulation of Article 68 relates to the Decision to grant Cultivation Rights, which is the authority of the Minister. The Head of the Regional Office submits the application file to the Minister. For submission of the application file, a cover letter is made by the Head of the Regional Office containing opinions, considerations and suggestions on whether or not the application can be granted. As mentioned above, submission

of application files can be done through an electronic system provided by the Ministry, and physical application files are still kept at the Regional Office.

The provisions above show that the arrangement of usufructuary rights in electronic form has been regulated in terms of filing up to the Decision on granting rights. However, the files in physical format must still be fulfilled to be stored at the regional office. Thus, legal certainty is the key to regulating usufructuary rights to provide clarity to the public.

Therefore, clarity is one of the contents of legal certainty, namely legal certainty by law and legal certainty in or from statute. Laws that guarantee a lot of legal confidence in society are helpful. Legal certainty is essential because the law gives another legal task, namely legal justice, and the law must still be beneficial. At the same time, legal confidence in the law is achieved if the law is as much as possible in the direction [13].

Procedure for Making a Deed of Cultivation Rights in the form of an Electronic Certificate. Land registration is a series of activities carried out by the government on an ongoing basis. Includes collection, processing, bookkeeping, and presentation and Maintenance of physical data and juridical data, in the form of maps and lists, up to issuing certificates of Proof of title for land parcels that already have rights.

The management of the electronic certificate of usufructuary rights shall pay attention to the Regulation of the Minister of Agrarian Affairs and Spatial Planning/ Head of the National Land Agency Republic of Indonesia No 18 of 2021 About Procedures for Determining Management Rights And Land Rights. For this reason, the submission to the issuance of a certificate refers to the provisions of Permen ATR No 1 of 2021 and ATR Regulation No 18 Year 2021.

Procedures for preparing, measuring and issuing usufructuary rights electronically can be described as follows.

Figure 1 shows the procedure for electronic certificates in general, namely starting from paying attention to land objects such as state land or land with management rights. Ministerial Decree determines state land, while Ministerial Decree issues land with management rights based on the approval of management rights holders. Based on the provisions, the right to cultivate is intended for agricultural, livestock and fishery/pond

business activities. In Permen ATR No 18 of 2022, the description of this activity is further expanded into several scopes.

Furthermore, it was also emphasised that certificates of usufructuary rights for state land and management rights can be made electronically.

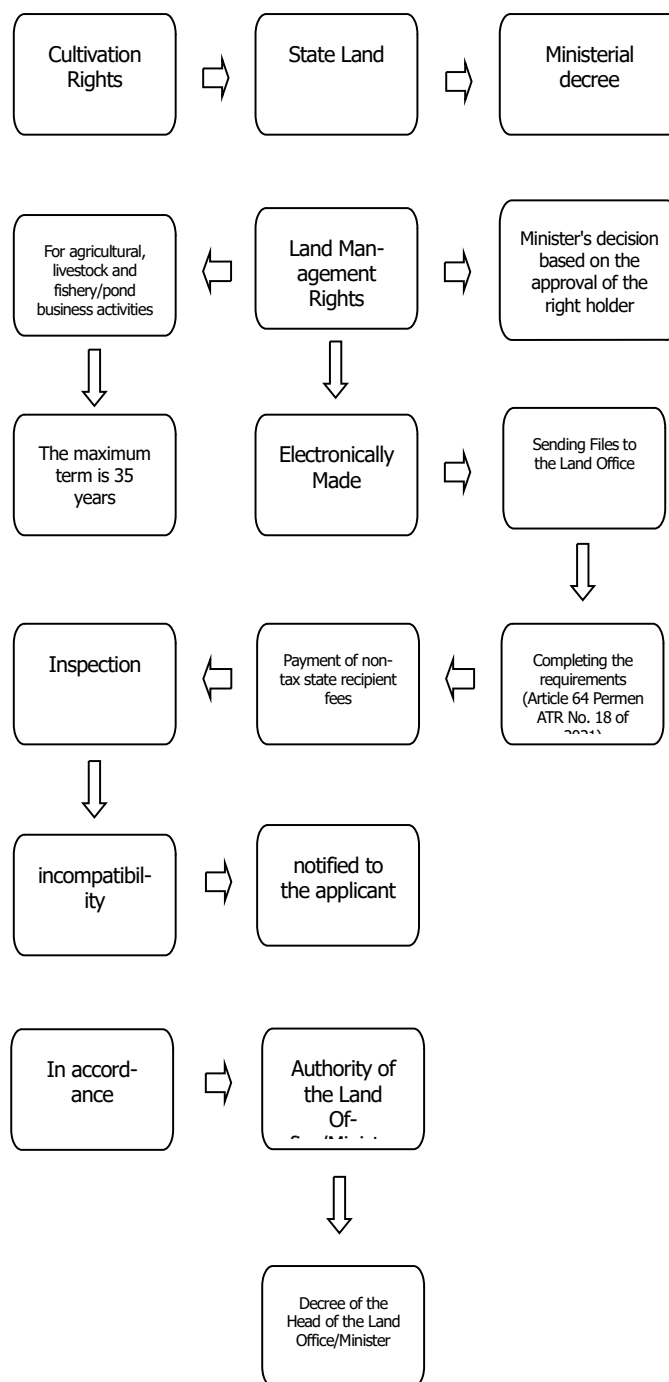


Figure 1 – Procedure for Issuing Electronic Certificates of Cultivation Rights

Further procedures are carried out at the Land Office by sending requirements paying non-tax state recipient fees. Then, the files are examined

and checked for suitability or non-compliance. If the files do not match, they will be returned or notified to the Applicant. Then, if the files are suitable, the authority of the Land Office or the Minister will be seen, and then a Decree of the Head of Office or Minister will be issued electronically. The essential vital provisions for each process can be described as follows.

Table 1 – Stages of Issuance of Cultivation Rights

Stages and Description
General
Article 51. Granting of Land Rights Individually or Collectively includes: a. Right of ownership b. Cultivation Rights c. Building rights d. Usage rights have a period, and usage rights are as long as they are used.
Granting of Cultivation Rights
<i>Requirements for Application for Cultivation Rights</i>
Article 61. Cultivation Rights can be granted to: a. Indonesian citizens b. A legal entity established according to Indonesian law and domiciled in Indonesia.
Article 62 1) Cultivation rights are granted for agricultural, animal husbandry, and fishery/pond business activities. 2) Land use with Cultivation Rights for agricultural businesses, as referred to in § 1, includes plantation businesses, food crops and/or horticultural crops. 3) Food crop business activities referred to in § 2 for rice crops can only be carried out or granted in creating new rice fields. 4) As referred to in § 3, new rice fields are printed on less or unproductive land to become productive rice fields. 5) Land with Cultivation Rights can be used for emplacements, factory buildings, warehouses, temporary residences for employees and other facilities that support business activities. 6) Land used to support business activities, as referred to in §5, may be granted rights according to its nature and function. 7) In the event that there is a change in the use of commodities, this can only be done after obtaining permission from the relevant agency and the holder of the Cultivation Right to report to the Head of the Land Office.
Article 63. Cultivation Rights are granted for a maximum period of 35 years, extended for a maximum of 25 years and renewed for a maximum of 35 years.

Stages and Description
Article 64 1) Requirements for application for Cultivation Rights originating from State Land include: a. Regarding the Petitioner: 1) The identity of the Petitioner, or the identity of the Petitioner and his attorney and power of attorney if authorised; 2) Deed of establishment and the latest amendments along with approval from the competent authority or company establishment regulations, Business Identification Number from Online Single Submission (OSS) or Company Registration Certificate (TDP), if the Applicant is a legal entity. b. Regarding the land: 1. The basis of control or the basis of the rights include: a. certificate, deed of transfer of title, deed/Proof of relinquishment of rights, Decision to relinquish forest area from the competent authority, minutes of auction, court decision or other evidence of land acquisition; b. if there is no evidence of land ownership as referred to in letter a), then physical ownership of the land shall be contained in a statement of physical ownership of the land parcel witnessed by at least 2 witnesses from the local environment who know the history of the land and have no family ties also known by the head of the local village or another name similar to that. 2. List and map of land acquisition if the application is for more than five areas. 3. Land Sector Map. c. Permit documents in the form of: 1. KKPR; 2. Business license related to its business activities. a. Land allotment, use and utilisation planning documents; b. Proof of implementation of the obligation to facilitate the development of community plantations for plantation companies; c. Proof of taxation relating to the land requested, if any; d. A statement of physical ownership of the land parcel for an individual Applicant or in the form of a notarial deed for an Applicant with a legal entity and is responsible both civilly and criminally stating that: 1. The land is actually owned by the person concerned, not owned by another person, and its status is State Land; 2. The land has been physically controlled; 3. Land tenure is carried out in good faith and openly by the person concerned as the owner of the land;

Stages and Description
4. Land acquisition is made according to the actual data and if it turns out that in the future, it will be the full responsibility of the Applicant and will not involve the Ministry; 5. There is no objection from other parties regarding the land owned or not in a state of dispute; 6. There is no objection from the creditor if land is used as collateral for a debt; 7. The land is not an asset of the Central Government/Regional Government or BUMN/BUMD asset; 8. The land being applied for is located outside the forest area and/or outside the region whose license has been terminated in primary natural forest and peatland; 9. The land being laid for does not overlap with the business license related to the utilisation of natural resources; 10. The land being used is not productive food agriculture land for the application for Cultivation Rights in the framework of creating new rice fields; 11. The ability to carry out CSR if the Applicant is a legal entity; 12. The ability to facilitate the development of community gardens for plantation companies; 13. Willing not to confine/close yards or other plots of land from public traffic, public access and/or waterways; 14. Ready to relinquish the land for the public interest either in part or in whole; 15. Willing to manage, maintain and supervise and maintain the function of a high conservation value conservation area, the operation of conserving the boundaries of water bodies or other conservation functions; 16. Willing to take preventive measures, including the implementation of an early fire suppression crisis management centre if the Applicant is a legal entity; and 17. Are eager not to cultivate the land by burning; e. Beneficiary Owner Statement is for companies that must report the beneficial owner as stipulated in the provisions of laws and regulations. 2) Requirements for application for Cultivation Rights originating from Land Management Rights include: a. Regarding the Petitioner: 1. The identity of the Petitioner, or the identity of the Petitioner and his attorney and power of attorney if authorised 2. Deed of establishment and the latest amendments along with approval from the competent authority or company establishment

Stages and Description
regulations, Business Identification Number from Online Single Submission (OSS) or Company Registration Certificate (TDP), if the Applicant is a legal entity; b. Regarding the land in the form of: 1) The land use agreement, which contains the obligations of the holder of Cultivation Rights includes: a. The ability to carry out CSR if the Applicant is a legal entity; b. The ability to facilitate the development of community gardens for plantation companies; c. Willing not to confine/close yards or other plots of land from public traffic, public access and/or waterways; d. Willing to manage, maintain and supervise and maintain the function of a high conservation value conservation area, the process of conserving the boundaries of water bodies or other conservation functions; e. Willing to take preventive measures, including the implementation of an early fire suppression crisis management centre if the Applicant is a legal entity and f. are eager not to cultivate the land by burning; 2. Land Sector Map; c. Licensing documents in the form of business licenses related to their business activities; d. Proof of implementation of the obligation to facilitate the development of community plantations for plantation companies; e. Proof of taxation relating to the land requested, if any; f. Beneficiary Owner Statement is for companies that must report the beneficial owner as stipulated in the provisions of laws and regulations.
Procedures for Granting Cultivation Rights
Article 65 1) After the complete application is received and the Petitioner has paid the non-tax state revenue fee referred to in Article 27, Committee B will conduct a land inspection. 2) In the event that based on the results of the land inspection, as referred to in § 1, there is still a discrepancy between the Physical Data and Juridical Data, the Applicant shall be notified.
Article 66 1) If the Decision to grant Cultivation Rights is the authority of the Head of the Land Office after the land inspection activities are carried out, the Head of Section prepares the concept: a. Decision to grant Cultivation Rights over the requested land; b. Decision to reject the application for Cultivation Rights, accompanied by the reasons for the rejection, if the application is denied.

Stages and Description
2) The Head of the Land Office issues a decision to grant a Cultivation Right or reject an application for a Cultivation Right based on the requirements documents submitted, the considerations of Committee B and the concerns of the Section Head. 2) The granting of usufructuary rights, as referred to in § 2 shall take effect from when the Land Office registers the rights.
Article 67 1) If the Decision to grant Cultivation Rights is the authority of the Head of the Regional Office after the land inspection activities are carried out, the Head of Field prepares the concept: a. Decision to grant Cultivation Rights over the requested land; b. Decision to reject the application for Cultivation Rights, accompanied by the reasons for the rejection, if the application is denied. 2) The Head of the Regional Office issues a decision to grant a Cultivation Right or reject an application for a Cultivation Right based on the requirements documents submitted and considerations from Committee B and the Head of Division.
Article 68 1) If the Decision to grant cultivation rights is the authority of the Minister, the Head of the Regional Office shall submit the application file to the Minister. 2) For submission of the application documents, as referred to in § 1, a cover letter is made for the Head of the Regional Office containing opinions, considerations and suggestions on whether or not the application can be granted. 3) Submission of application documents, as referred to in § 1 can be done through an electronic system provided by the Ministry. 4) In the event that the submission is made through the electronic system, as referred to in § 3, the application files are physically kept at the Regional Office.
Article 69 1) Suppose the Decision to grant the Cultivation Right is the authority of the Minister, as referred to in Article 68 § 1. In that case, the Director General examines and reviews the completeness and correctness of the application's Physical Data and Juridical Data. 2) If, based on the results of the examination, research and assessment as referred to in § 1, there are still discrepancies in the Physical Data and Juridism Data, the Applicant will be notified through the Regional Office 3) After carrying out inspections, research and assessments of the completeness and correctness of Physical Data and Juridical Data

Stages and Description
as referred to in § 1, the Director General prepares a draft: a. The Decision to grant Cultivation Rights over the requested land or b. The reasons for the rejection accompany the Decision to reject the application for Cultivation Rights if the application is denied. 4) The Minister issues a decision on granting business use rights or rejecting an application for usufructuary requests based on the requirements documents submitted and considerations from Committee B, the Head of the Regional Office and the Director General. 5) As referred to in § 4, granting usufructuary rights shall take effect from the time the Land Office registers the rights.

Strength of Cultivation Right Certificate Based on PP No 18 of 2021 and ATR Regulation No 18 Year 2021. PP No 24 of 1997 has regulations related to electronic systems but are limited to storage only. PP No 24 of 1997 includes provisions relating to storage. Namely, Article 35, § 5 states that land registration data is stored and presented using electronic equipment and microfilm. Then, § 6 confirms that the recorded documents produced by electronic devices or microfilm, as referred to in § 5, have the power of Proof after being signed and stamped by the Head of the Land Office concerned.

Based on the provisions of PP No 18 of 2021 and ATR Regulation No 18 of 2021, then regulates submission by electronic system until its issuance. The provisions of PP No 18 of 2021 Article 10 concerning management rights state that a Ministerial Decree stipulates management rights originating from State Land or Ulayat Land. Such decisions can be made electronically. However, the registration process is accompanied by physical documents until the issuance of an electronic certificate. This means that the requesting party must still fulfil the aspects of the physical document requirements in the series of stages to the distribution of electronic records. This can be seen from the provisions in Permen No 18 of 2021, as described in the previous chapter.

Furthermore, PP No 18 of 2021 states that to prove in court and/or provide land information requested by agencies that need it for carrying out their duties, data and/or documents can be given access through an electronic system. This is regulated in Article 85, stating:

- 1) All data or documents in the framework of land registration activities are gradually stored and presented as electronic documents by utilizing information and communication technology.
- 2) Data and/or documents, as referred to in § 1 are stored electronically in the Ministry database.
- 3) To prove in court and/or provide land information requested by agencies that need it to carry out their duties, data and/or documents as referred to in § 2 may be granted access through an electronic system.

In addition, the Job Creation Law emphasises in the chapter on Government Administration, in Article 38, that Powerful Electronic Form Decisions, the law is the same as a written decision and practical from the receipt of the determination by the party concerned.

Furthermore, Article 147 of the Job Creation Law states, "Proof of land rights, ownership rights to apartment units, management rights, and mortgage rights, including deed of transfer of land rights and other documents related to land can be in electronic form".

Based on the provisions of the ITE Law in Article 5 § 4, electronic documents do not meet the requirements for document authenticity as stipulated in Article 1868 of the Civil Code. From this provision, the legal force of Proof of electronic certificates stored electronically or in electronic form in evidence in civil procedural law can only function as a backup and not as a copy with binding force.

The use and recognition of electronic documents as evidence also need to be reviewed based on the Company Documents Law, which states that company documents consisting of records, bookkeeping evidence, and financial administration supporting data as referred to in this law, whether made in written form on paper or other means or recorded in any format that can be seen, read or heard, can be used as evidence. Documents stored in electronic form can be used as legal evidence in court if a dispute occurs in the future [14].

In theory, electronic certificates are part of legal protection and guarantee legal certainty. The storage of protocols is intended to ensure the truth of facts so that evidence can be used.

There are two kinds of proof systems, namely, the formal proof system and the material proof system. The civil procedural law in Indonesia ad-

heres to a legal evidence system based on proper evidence submitted by the parties to the dispute in court and only seeks formal truth. Formal truth is based on what the parties state or postulate before the court, so the judge is not able to determine legal validity but is bound by what the parties say.

Formal electronic evidence in the provisions of civil procedures is not yet strong. It will be difficult for judges to resolve and decide on disputes if the parties submit electronic documents as evidence because, until now, there has been no precise regulation regarding the strength of making equivalent electronic evidence with an Authentic deed. This cannot be used as an excuse by the judge not to accept, examine and decide on cases submitted to him, even if the law is unclear or there is no regulation.

The principles contained in Article 10 of Law No 48 of 2009 concerning Judicial Power state that a judge may not refuse to examine and decide on a case submitted to him even if the legal pretext is unclear or does not exist. Therefore, the judge must still accept to explore and decide on a matter submitted to him despite no law, so the judge must make legal discoveries. In other words, the strength of electronic evidence as a guide is highly dependent on the judge's conviction as a case breaker [15].

The digitisation of deeds and certificates also aims to maintain archives so that they remain dynamic and are intended to maintain the security, safety and integrity of these archives. More than that, information that is spoken, sent, received, or stored electronically with optical devices or something similar is an extension of the provisions regarding the source of obtaining evidence.

Several regulations that support the implementation of the transfer of notary protocols in electronic form in Indonesia as also described above, namely: a) Articles 5 and 6 of the Information and Technology Law, which recognise electronic documents as legal evidence; the Job Creation Law; d) PP No 18 of 2021; d) ATR Regulation No 1 the Year 2021; e) ATR Regulation No 18 the Year 2021.

The strengthening of these rules will provide legal protection to the community. Legal protection is always related to the role and function of law as a regulator and safety of the public interest. In his book "Crime and Custom In Savege", Broin

Malinowski says that the law plays a role in violence, conflict, and daily activities [16].

The aspect of protection in the strength of Proof of electronic certificates can also be related to the opinion. According to Philipus M. Hadjon, regulations provide legal protection for dignity and recognition of human rights owned by legal subjects. It prevents arbitrariness in the application of law [16]. In addition, according to what Philipus M. Hadjon said, the Proof of electronic certificates has aspects of preventive legal protection, which aims to prevent problems or disputes. Then, the repressive legal defence seeks to resolve issues or conflicts that arise [16].

The problem of law enforcement is aimed at ensuring compliance with applicable legal provisions, and concrete law enforcement is applying positive law in practice as it should be obeyed. For this reason, the existence of positive law includes avoiding arbitrariness as part of legal protection.

The application of law can guarantee the fulfilment of legal protection through the existence of legal force. Based on research results, the power of law is to fulfil the aspect of Proof. The Job Creation Law's provisions are a positive law that lists the strength of the electronic certificate document as evidence, stating that the Decision Powerful Electronic Form is the same as a written decision and practical from the receipt of the judgment by the party concerned.

In addition, there are provisions in the ITE Law which generally recognise electronic documents and implement requirements for government and ministerial regulations as described in the previous chapter. This regulation is a form of legal protection for the community, guaranteeing the strength and certainty of law.

Then, aspects of electronic certificates in preventive legal protection aim to prevent problems or disputes. From this, provisions in positive law prevent legal certainty conflicts because it is vulnerable to cause problems. The conditions emphasised in the Job Creation Law and technical requirements in government regulations and ministerial regulations related to procedures and procedures avoid disputes because electronic certificates provide signs up to their issuance. If there is a dispute, then the administrative process that has been determined can be observed so that there are indicators of clarity and errors and mistakes can be detected.

In this case, it can be interpreted that the existence of provisions can determine the settlement taken. In the event of an error or process error, room for payment can be given administratively, relating to conditions and testing the Decision of an authorised official where there is a possibility of abuse of authority or maladministration. Conversely, it can also be identified if there are civil problems or violations of criminal provisions. From this legal protection, the existence of normative conditions can be an indicator in the application of law so that there is no arbitrariness, preventing disputes from occurring and as a basis for aspects of dispute resolution if something goes wrong.

CONCLUSIONS

Arrangement of the deed of usufructuary rights in the form of an electronic certificate is contained in Law No 11 of 2020 concerning Job Creation, PP No 1 Year 2021 concerning Management Rights, Land Rights, Flats Units, and Land Registration, Permen ATR/Head of BPN No 1 of 2021 concerning Registration of ATR/Head of BPN Certificates and Regulations No 18 of 2021 concerning Procedures for Determining Management Rights and Land Rights. The Job Creation Law confirms that Officials and/or Government Agencies can make Decisions in Electronic Form, and Proof of land rights and other documents related to land can be in electronic form. PP No 1 of 2021 states that management rights, including through usufructuary requests and decisions can be made electronically. Permen ATR/Head of BPN No 1 of 2021 states that land registration can be carried out electronically. Permen ATR/Head of BPN No 18 of 2021 states that submitting applications and files and issuing management rights can be done through an electronic system provided by the Ministry.

The procedure for making a usufructuary deed as an electronic certificate is based on Permen ATR/Head of BPN No 1 of 2021 and ATR/Head of BPN Regulation No 18 of 2021. ATR/Head of BPN Regulation No 1 of 2021 regulates the introductory provisions and range of electronic certificates while it relates to the procedures for following Permen ATR/Head of BPN No 18 of 2021, starting from the stages of file preparation, measurement, submission to the establishment of management rights in electronic certificates.

The legal strength of the electronic usufructuary certificate includes the power of Proof, certainty and legal protection, which are recognised in the Job Creation Law, the ITE Law and contained in PP No 18 Year 2021 regarding Management Rights, Land Rights, Flats Units, and Land Registration, and Permen ATR/Head of BPN No 1 of 2021 concerning Electronic Certificates. The Job Creation Law states that decisions in electronic form have power. The law is the same as a written decision and practical from the receipt of the Decision by the party concerned. The ITE Law stipulates that it must be supplemented with

other supporting documents or function as a backup, not a copy with binding legal force. PP No 18 of 2021 states that to prove in court and/or provide land information requested by agencies that need it for carrying out their duties, data and/or documents can be given access through an electronic system. ATR Candy No 1 of 2021, concerning Electronic Certificates, has also confirmed the strength of Proof of electronic certificate rights, namely valid legal evidence and an extension of legal evidence by the applicable procedural law in Indonesia.

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Indoor/Outdoor Concentration of Pollutants Around Major Roundabouts in Ilorin Metropolis, Nigeria

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Abstract. The escalation of daily human activities has led to a surge in gaseous pollutants and particulates, with indoor environments often exhibiting higher pollutant levels than outdoor air. This study delves into the intricate relationship between outdoor pollutants and indoor settings near traffic intersections within the Ilorin metropolis. The research focuses on six strategically chosen locations with intensified vehicular and human interactions. Data on particulate concentration were collected at various time intervals.

The Met One Aerocet 531s apparatus assessed indoor and outdoor particulate matter concentrations. Additionally, the Crowcon Gas Pro, a versatile multi-gas measurement equipment, facilitated the quantification of gaseous pollutants, including Oxygen, Carbon monoxide, Carbon dioxide, Hydrogen sulfide, and Methane. The assessment of other gaseous pollutants, such as NO, NO₂, and NH₃, was conducted using the ToxiRAE II apparatus, which offers diverse measurement capabilities. The Kestrel weather tracker contributed to the study by furnishing microclimatic parameters. All measurement instruments were strategically positioned at approximately 1.5 meters above ground level.

Vehicular density variation emerged as a pivotal criterion in the evaluation process. Findings revealed elevated outdoor PM₁₀ concentrations during rush hours at the roundabouts, indicating heightened pollutant emissions during peak traffic times. Conversely, intriguingly elevated indoor PM₁₀ concentrations were observed within specific indoor environments during non-rush hour periods. This phenomenon potentially results from the interplay of meteorological fluctuations and indoor activities, underscoring the complexity of pollutant dispersion dynamics.

Indoor-to-outdoor concentration ratios emerged as a significant metric, consistently exceeding unity across diverse sites. This observation substantiates the presence of indoor-based pollutant sources,

necessitating vigilant monitoring and effective mitigation strategies to mitigate potential health risks for indoor occupants.

This research contributes vital insights into the intricate domain of air quality assessment, offering nuanced perspectives on pollutant distribution dynamics, indoor exposure scenarios, and ensuing health implications. By addressing the complex nexus between outdoor and indoor environments, this study emphasizes the imperative of adopting comprehensive strategies to curtail pollutant emissions at their source, foster sustainable urban planning, and enhance the quality of indoor environments. The outcomes resonate with broader endeavours to address the far-reaching consequences of air pollution on both ecological equilibrium and human well-being.

Keywords: air quality assessment; pollutant concentration; air quality; air pollution.

INTRODUCTION

Air pollution is a significant and widespread environmental issue that affects industrial towns and urban areas worldwide [1, 2]. It refers to introducing harmful substances into the atmosphere, causing damage to the environment, human health, and overall quality of life. Air pollution can occur indoors, in homes, schools, offices, and outdoors, leading to various health and environmental concerns [3].

Air pollutants can be broadly categorized into two main types: gaseous pollutants and particulate matter.

Gaseous pollutants are atmospheric compounds in concentrations typically below 100 parts per million. These pollutants include gases like nitrogen oxides (NO_x), sulfur dioxide, ammonia, carbon dioxide, methane, and volatile organic compounds (VOCs) [4]. Some of these gases, such as NO_x and SO₂, are highly hazardous to human health and associated with various health issues, including respiratory problems and cancer [5]. Radon, a radioactive gas that seeps into homes from the soil, poses a significant health risk and has been linked to lung cancer [6]. Carbon monoxide (CO), another dangerous indoor gas, is produced from the incomplete combustion of fossil fuels and can interfere with oxygen transport in the blood, leading to serious health consequences. Indoor environments are also exposed to organic gases, often called volatile organic compounds (VOCs), which emanate from various household products and materials [7].

Solid particles and liquid droplets suspended in the air are called particulate matter. These particles vary in size and can be categorized based on their diameters. Inhalable coarse particles, with

diameters between 2.5 and 10 micrometres, are often found in dusty environments and outdoor settings. Fine particles, with diameters of 2.5 micrometres or less, are commonly associated with smog and can reach deep into the lungs, causing respiratory issues [8].

Vehicle emissions are a significant contributor to the release of pollutants into the atmosphere. Vehicle emissions are an essential contributor to releasing pollutants into the atmosphere, such as unburned hydrocarbons, particulates, carbon dioxide (CO₂), and nitrogen oxides (NO_x). These emissions lead to smog, acid rain, and greenhouse gas effects, adversely impacting the environment and human health. The combustion of fossil fuels in vehicles releases pollutants that can react in the atmosphere to create photochemical smog and contribute to global warming [9].

Smog, a combination of smoke and fog, is a localized pollution often trapped by thermal inversions. Burning gasoline in vehicles is a primary source of smog in many regions, producing ozone and other harmful substances. Smog can cause eye and lung irritation, damage plants, and contribute to acid rain [10].

Air pollution has significant environmental effects, including ozone depletion, global warming, and acid rain.

Ozone depletion in the stratosphere, caused by releasing substances like chlorofluorocarbons (CFCs), increases exposure to harmful sun ultraviolet rays. This phenomenon can result in higher rates of skin cancer, cataracts and reduced crop yields.

By trapping heat in the Earth's atmosphere, greenhouse gases like carbon dioxide (CO₂)

contribute to global warming and hurt the climate [11].

Airborne pollutants can combine with water vapour to form acids, leading to the formation of acid rain. Acid rain harms ecosystems and infrastructure, including plants, animals, and building materials [12].

Particulate matter and gaseous pollutants have wide-ranging adverse effects on human health, causing various respiratory, reproductive, carcinogenic, and neurological issues. Particulate matter can penetrate the lungs, leading to respiratory problems, while toxic gases like carbon monoxide (CO) can interfere with oxygen transport in the bloodstream.

Efforts to control and prevent air pollution involve both end-of-the-pipe technologies that capture pollutants and measures to reduce pollution at its source. Regulatory standards, such as those limiting emissions from industrial smokestacks and automobile tailpipes, play a crucial role in curbing pollution. Additionally, interventions like providing vented stoves have improved indoor air quality.

While traffic pollution studies have been conducted in various parts of the world, including developed countries, no research focuses on Nigeria's specific challenges of traffic-related pollution. Understanding the unique dynamics of traffic pollution in Nigeria is crucial for developing effective mitigation strategies tailored to the country's context.

In conclusion, both human health and the ecosystem are seriously threatened by air pollution. Gaseous pollutants and particulate matter, often from human activities such as vehicular emissions, cause various health and environmental concerns. Effective pollution control measures and targeted research are essential to mitigate the adverse impacts of air pollution on both local and global scales.

METHODOLOGY

Sampling Locations. The monitoring was done in Ilorin, the capital city of Kwara state in Nigeria, at some significant roundabouts. The roundabouts were chosen because of the high use rate of the axes by commuters because they are primary access routes to some essential parts of the city. The average patronage of vehicles on the streets is approximately 7,200 at non-rush hours and about

13,200 at rush hours, considering the four lanes leading to the roundabouts, the double-lane road, and the roundabouts cross junctions. Various vehicles such as Motorcycles, Tricycles, Cars, Lorries, and trucks ply the road for commercial and personal services. The diurnal variations of fleet compositions were constant each day, with relatively low traffic numbers during daytime (non-rush hours, i.e., 10:00 am-2:00 pm) and high values during evening time (rush hour, i.e., 4:00 pm-8:00 pm).

The sampling exercise was carried out at the under-listed roundabouts in the Ilorin metropolis: 1) Tipper garage roundabout (Tanke, University Road); 2) Post office roundabout; 3) Unity roundabout; 4) Oja Oba roundabout; 5) Garin-Alimi roundabout; 6) Offa garage roundabout.

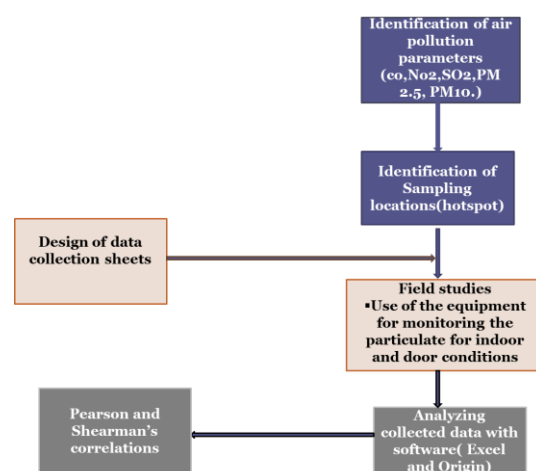


Figure 1 – Flow diagram for the methodology

The map below shows the hotspots' corresponding positions within the Ilorin metropolis.

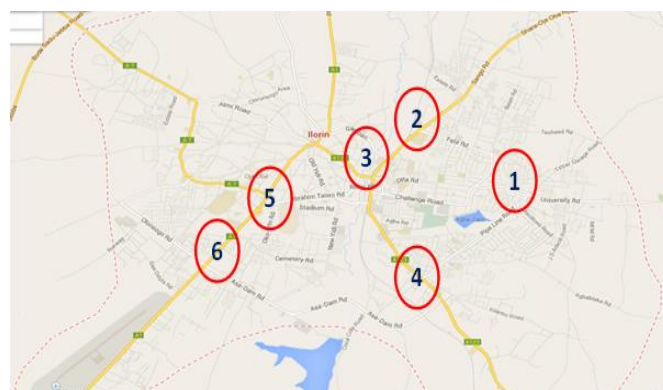


Figure 2 – Map of selected hotspots within the Ilorin metropolis

Indoor characteristics of sampling locations in the Ilorin metropolis. For this research, indoor air samples were taken in shops near the

roundabouts for comparison. Below are the indoor areas with the corresponding properties.

Table 1 – Some Indoor characteristics of sampling locations

Location	Indoor description	Approximate distance from the road	Number of occupants	Ventilation type
Tipper garage	A provision store and a building material shop	8	8	Door. No window
Post office	A shoe shop and a clothing shop	2	7	Door. No window
Unity	A provision/cosmetic. Upstairs in a one-story building.	6	7	Door. No window
Ojo-Oba	A provision store/ pharmacy. Upstairs of a 1-storey building.	3	5	Door. No window
Garin-Alimi	Vulcanizer's shop	4	8	More like a shed
Offa Garage	A pharmacy		7	Door

Measurements of Particle Numbers and Size Distributions. The sampling equipment was placed about 1.5 meters from the floor. During the samplings, the primary concerns were the size distribution, number distribution, and the gaseous pollutant constituents. Aerocet 531s, equipment produced by Met One Instruments, was used for the mass and number concentration characterizations, while the Crowcon gas-pro was used for the gas detection. The two instruments are handheld, battery-operated, and completely portable units. The Aerocet 531s measures five number concentration ranges of Total Suspended Particles: PM_{0.3}, PM_{0.5}, PM₁, PM₅, and PM₁₀. It has a sampling period of 1 minute and a flow rate of 2.83 l/min. The concentrations were extrapolated to 8 hours and 24-hour averaging periods using an atmospheric stability formula given in the equation below:

$$C_0 = C \times F \quad (1)$$

where C_0 – the concentration at the averaging period t_0 ;

C – the concentration at the averaging period t_1 ;

F – factor to convert from the averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$;

n – 0.28, the stability-dependent exponent.

The measurement devices were turned on in the environment of interest and set at a height of about 1 m. After particle collecting, the measured concentration was shown directly on the screen.

Measurements of Gaseous Pollutants Concentration. Gaseous pollutants in the selected areas were measured using Crowcon Gas Pro and ToxiRAE equipment of varying specifications, such as NO, NH₄, and SO₂. The equipment was placed about 1.5 meters above ground level.

Sampling Equipment Description. This instrument produced by "Met One instruments" was used in the particulates sample measurement. The equipment displayed below is digital, portable, and battery-operated. To size individual particles that pass through the laser optical system, particle number counts and mass particulate matter measurements are done using the light scattering principle. Equivalent mass concentration has been derived and displayed using a proprietary algorithm.

Oxygen (O₂), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen sulfide (H₂S), and Methane (CH₄) gases are among the up to 5 gases that Gas-pro can detect. This device was used to determine the air quality, i.e., what gases and the amount the air in the environment contains. The exhaust from vehicles and emissions from other gaseous pollutant sources were analyzed with this equipment. This real-time monitoring device provides

continuous readings that are subsequently subjected to mathematical or computer analysis.

The equipment will undergo fresh air calibration before a sample is taken.

During the data collection operation, the equipment was situated above ground level, some distance from the road.

ToxiRAE II apparatus. This single gas personal protection monitor shows the dangerous gas level in real-time. The apparatus can measure a wide range of gases depending on its type. For this research work, CO, NH₃, NO₂, and H₂S were measured with the available ToxiRAE types.

Kestrel weather tracker. This was used to determine microclimatic parameters.



Aerocet 531s



Crowcon gas pro



A typical ToxiRAE



Kestrel weather track

Figure 3

Analysis of Correlation. The link between two elements, like the security price and an indicator, is measured through correlation analysis. The calculated value, often known as the "correlation coefficient," indicates whether changes to one item will also affect the other.

RESULTS AND DISCUSSION

Table 2 shows the meteorological parameters of the sampling locations. Average temperature values ranged between 31.5 to 38 °C, where 31.5 °C is the lowest recorded value for temperature while 38 °C was the highest recorded. This variation could be due to varying times. Also, the relative humidity was on an average of 62.68%. This is a relatively high value as the quantifying was done during the rainy season.

Table 2 – Meteorological data

Range	Temperature (°C)	Relative humidity (%)
Minimum	31.50	53.60
Maximum	38.00	69.20
Average	33.77	62.68

Effect of Vehicular density variation on particulate concentration in Indoor and Outdoor Environments. Tables 3, and 4 present the averaged values of outdoor and indoor particulate matter concentrations, respectively, with variations in vehicular densities at the spots. It could be observed that virtually all the rush hour values (high vehicular density denoted with RH) values are higher than their corresponding non-rush hour (low vehicular density indicated with NRH) values. This explains that vehicular density dramatically affects the concentration of particulates in the environment. Both coarse and fine particles are at relatively high concentrations.

Though these variations are significantly lower than those seen during rush hour, some areas, like Offa Garage, the Post Office, and Garin Alimi, exhibit a minor increase in PM 2.5 concentrations outside of rush hour. Other than fluctuations in emissions from mobile sources, this could result from weather factors. High humidity and temperature can also lead to a rise in the concentration of some pollutants. Though these variations are significantly lower than those seen during rush hour, some areas, like Offa Garage, the Post Office, and Garin Alimi, exhibit a minor increase in PM 2.5 concentrations outside of rush hour. Other than fluctuations in emissions from mobile sources, this could result from weather factors. High humidity and temperature can also lead to a rise in the concentration of some pollutants [13, 14, 15].

Indoor and Outdoor Particulate Matter Concentrations. The study shows the amounts of particulate matter below and above 10 microns indoors and outdoors at the chosen sampling stations. The

study shows the parts of particulate matter below and above 10 microns indoors and outdoors at the selected sampling stations.

Table 3 – Averaged values of particulate matter for outdoor sampling at the selected hotspots

Location	PM Concentration ($\mu\text{g}/\text{m}^3$)					
	1	2.5	4	7	10	TSP
Tipper garage NRH	60.60	62.50	148.00	312.40	449.45	703.68
Tipper garage RH	41.76	88.03	217.84	496.75	757.45	1307.88
Offa Garage NRH	34.82	56.46	119.01	261.76	395.64	654.60
Offa Garage RH	22.44	42.88	92.42	170.82	229.14	335.86
Post Office NRH	42.69	61.65	99.03	163.47	217.53	321.56
Post Office RH	50.18	85.83	175.79	342.08	485.53	753.51
Garin Alimi NRH	43.01	67.49	121.78	243.08	347.46	571.96
Garin Alimi RH	37.78	64.18	126.89	234.78	322.63	471.56
Unity NRH	40.15	77.21	173.19	334.30	476.89	733.18
Unity RH	49.97	87.72	189.83	409.17	615.50	1105.12
Oja Oba NRH	32.43	51.01	111.95	278.38	454.07	898.97
Oja Oba RH	68.55	98.82	185.83	423.51	668.82	1183.94

Table 4 – Averaged values of particulate matter for indoor sampling at the selected hot spots

Location	Particulate Matter Concentration ($\mu\text{g}/\text{m}^3$)					
	1	2.5	4	7	10	TSP
Tipper garage NRH	26.38	61.06	168.60	391.70	590.98	996.36
Tipper garage RH	54.96	101.30	229.86	483.20	694.68	1116.06
Offa Garage NRH	54.39	79.08	157.44	357.30	555.22	936.01
Offa Garage RH	37.27	71.07	182.77	419.20	631.00	1004.13
Post Office NRH	36.03	80.62	244.50	603.71	924.06	1638.85
Post Office RH	54.96	101.30	229.86	483.20	694.68	1116.06
Garin Alimi NRH	43.17	66.59	118.07	213.70	296.84	471.10
Garin Alimi RH	32.83	59.60	135.63	273.87	392.97	612.27
Unity NRH	32.20	55.42	105.66	174.58	225.18	310.64
unity RH	54.96	101.30	229.86	483.20	694.68	1116.06
Oja Oba NRH	26.38	61.06	168.60	391.70	590.98	996.36
Oja Oba RH	54.96	101.30	229.86	483.20	694.68	378.49

Tables 3 and 4 summarize the indoor and outdoor particulate matter concentration results in the six locations with high and sometimes low vehicular patronage. Indoor PM₁₀ concentrations varied from 225.18 $\mu\text{g}/\text{m}^3$ at the Unity roundabout during a low vehicular patronage period to 694.68 $\mu\text{g}/\text{m}^3$ at the Tipper garage roundabout during a relatively high vehicular patronage period.

The outdoor PM₁₀ concentrations varied from 217.53 $\mu\text{g}/\text{m}^3$ at the Post Office roundabout during a low vehicular patronage period to 757.45 $\mu\text{g}/\text{m}^3$ at the Tipper garage roundabout during a relatively high vehicular patronage

period. This range of values establishes the effect of vehicular density on particulate concentration.

As presented in Table 4, it was observed that the indoor environment has a higher concentration of particulates. This could be due to poor ventilation methods in the indoor climate, thereby hindering the dispersion of the particulates. Ventilation is a valuable method of controlling the indoor atmosphere [16].

The amount of contaminants indoors may also rise due to other activities. Environmental tobacco smoke, asbestos from insulating and fire-retardant building supplies, formaldehyde from

pressed wood products, other organics from building materials, carpet and other office furnishings, cleaning supplies and activities, restrooms, air fresheners, and print shops are examples of ordinary office (indoor) pollutants and their sources. The amount of contaminants indoors may also rise due to other activities. Environmental tobacco smoke, asbestos from insulating and fire-retardant building supplies, formaldehyde from pressed wood products, other organics from building materials, carpet, and other office furnishings, cleaning supplies and activities, restrooms, air fresheners, and print shops are examples of ordinary office (indoor) pollutants and their sources [15].

Tobacco smoke was perceived in some indoor sampling points; some indoor environments were cosmetics and provisions shops. This will also contribute to the particulate concentration.

The PM_{2.5} to PM₁₀ and PM₁₀ to TSP ratio for indoor and outdoor values. Table 5 gives the fraction of particulate with size ranging from 2.5 μm downwards in diameter in the ones with a diameter ranging from 10 μm downwards and particulate with a diameter ranging from 10 μm downwards to the Total Suspended Particles, respectively.

Table 5 – Indoor and Outdoor ratio particulate matter concentrations

Location	Indoor/Outdoor ratio					
	PM1	PM2.5	PM4	PM7	PM10	TSP
Tipper garage NRH	0.44	0.98	1.14	1.25	1.31	1.42
Tipper garage RH	1.32	1.15	1.06	0.97	0.92	0.85
Offa Garage NRH	1.56	1.40	1.32	1.36	1.40	1.43
Offa Garage RH	1.66	1.66	1.98	2.45	2.75	2.99
Post Office NRH	0.84	1.31	2.47	3.69	4.25	5.10
Post Office RH	1.10	1.18	1.31	1.41	1.43	1.48
Garin Alimi NRH	1.00	0.99	0.97	0.88	0.85	0.82
Garin Alimi RH	0.87	0.93	1.07	1.17	1.22	1.30
Unity NRH	0.80	0.72	0.61	0.52	0.47	0.42
unity RH	1.10	1.15	1.21	1.18	1.13	1.01
Oja Oba NRH	0.81	1.20	1.51	1.41	1.30	1.11
Oja Oba RH	0.80	1.03	1.24	1.14	1.04	0.32

It was observed that the indoor and outdoor environments pollutants were predominantly coarse, which could be due to meteorological parameters such as wind speed and wind direction. At the same time, PM₁₀ takes more than half of the fraction of the Total suspended Particles in virtually all the locations at different vehicular density periods.

The concentration of Gaseous pollutants in indoor and outdoor environments. Table 6 shows that Carbon monoxide, the primary pollutant, has a higher overall concentration in the indoor environment compared to the outdoor environment.

The concentration of CO is exceptionally high compared to other gases. This could be due to indoor activities that involve combustion, as CO is a product of incomplete combustion of organic matter, such as cooking and tobacco smoking. Improper ventilation is also responsible for the more

extended residence of the pollutant in the indoor environment.

Carbon Monoxide. This gas is majorly a product of incomplete combustion of organic matter. The concentration of CO is high due to poor ventilation of nearby shops at the roundabouts, which hinders proper circulation of fresh air.

Pearson and Spearman's Correlations. The correlation between indoor and outdoor surroundings can be utilized to infer a source link between the two types of environments [17]. When the average I/O ratio is less than or equal to 1, outside sources, particularly diesel motor vehicle exhaust, are the main contributors to PM₁₀ [17]. Results reveal a positive link between microclimatic conditions and particulate matter concentration. Additionally, for indoor settings, the correlation between PM_{2.5} and PM₁₀ and TSP is very high ($r^2 = .532$ and 0.500 , respectively). TSP and relative humidity have a positive, albeit slender, connection in an indoor environment ($r^2 = 0.230$).

Table 6 – Averaged values of gaseous pollutants at the hotspots

Location	CO	CO ₂	H ₂ S	CH ₄	NH ₃	SO ₂
Tipper garage Outdoor	7.79	0.02	0.05	0	0.29	0.9
Tipper garage Indoor	4.43	0.03	0.5	0	0	0
Offa Garage Outdoor	0.82	0.05	0	0.63	0	0
Offa Garage Indoor	7.22	0.04	0.44	0	0	0
Post Office Outdoor	6.31	0.15	0.48	0	0	0
Post Office Indoor	18.82	0.02	0.59	0	0	0.56
Garin Alimi Outdoor	4.98	0.04	0.44	0	0	0.26
Garin Alimi Indoor	7.22	0.04	0.44	0	0	0
Unity Outdoor	10.23	0.04	0.47	0.5	0	0.78
Unity Indoor	4.43	0.03	0.5	0	0	0
Oja Oba Outdoor	3.38	0.04	0.5	0	0	0.32
Oja Oba Indoor	3.53	0.04	0.5	0	0	0

CONCLUSION AND RECOMMENDATIONS

The indoor and outdoor ratios are alarmingly high, which shows that indoor air quality is more dangerous. This is due to poor ventilation in the shops, which hinders further dispersion of pollutants from the outdoor environment. This research helped remove the gap in understanding the relationship between indoor and outdoor air pollutants in the Ilorin metropolis. The author [18] predicted that the I/O ratio is (0.4-0.6) in the absence of Indoor air sources. Few sites in this research had such a ratio, while a more significant number of sites showed otherwise, indicating the possible presence of indoor sources and poor ventilation. Gaseous pollutants like CO, H₂S, CH₄, CO₂,

and NO₂ were analyzed. The air around the roundabouts is not healthy for humans and animals. As determined by Pearson's and Spearman's correlation, indoor and outdoor pollutants have strong correlations.

Shop owners should be enlightened on proper ventilation in their shops to avoid respiratory diseases. Knowing full well that mere advice might not be as practical as expected, disciplinary measures can be implemented to caution culprits. The law should be enforced to curb indiscriminate domestic and industrial activities that could threaten the environment. Kwara State Environmental Protection Agency (KWEPA) can enforce laws on the proximity of shops to roads.

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Water and Wastewater Treatment in Nigeria: Advancements, Challenges, Climate Change and Socioeconomic Impacts

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Abstract. The research addresses the prevalent issue of inadequate water and wastewater treatment in Nigeria. Over the years, advanced countries have developed substantial and robust systems for the treatment of water and wastewater, which ensures the preservation and sustenance of societal health and mitigates against the negative impacts that untreated and unregulated wastewater could cause to the environment, including water pollution, transmission of illnesses, destruction of ecosystems etc. The study examines the historical and most recent water treatment methods, including boiling and more advanced techniques such as Membrane Filtration, Ultraviolet Disinfection and Reverse Osmosis. Also, an overview of the potential threats to water treatment, including poor power supply, poor infrastructure, poor waste management system, poverty, policy issues, and corruption, was conducted. With the advent of technology, treatment methods such as biological and chemical treatments have been instituted. For example, biological treatment entails using bacteria to destroy contaminants in water, leveraging the natural ability of microorganisms to survive in unseemly harsh conditions. The paper explores the economic analysis of waste management strategies in Nigeria, stating the costs, benefits and challenges faced.

While implementing these strategies can be costly due to a lack of infrastructural and institutional capacity, it benefits societal health protection and promotes environmental sustainability in the long run. Stakeholder engagement includes supporting water and wastewater treatment technology implementation and setting up local committees. That can help educate and ensure proper disposal of waste and wastewater by homeowners, industries and local businesses, which is discussed as an essential factor in providing adequate water reforms. The research examines important organisations in Nigeria responsible for conducting research, developing policies, enforcing environmental laws, and developing national guidelines and standards. These organisations include the Federal Ministry of Water Resources, the National Water Resources Institute, River Basin Development Authorities, the Federal Environmental Protection Agency, the Federal Ministry of Environment and the National Environmental Rules and Regulations Enforcement

Agency. We examined the relationship between climate change, water and wastewater treatment, discussing the effects of climate change on water resources, including irregular rainfall patterns, decreasing ice sheets, increasing sea levels, floods and droughts. The efforts of the Nigerian government to combat climate change, such as the introduction of the national climate change policy and the enactment of the Climate Change Act 2021, were highlighted. The study also highlights the need for comprehensive strategies and cooperation to achieve long-term climate goals and promote climate-resilient economic development. We looked into the socioeconomic impact of effluent discharge and socioeconomic factors related to climate change in Nigeria. It reveals how wastewater affects agricultural activities such as fishing and farming and negatively impacts aquatic life, farmers and consumers. Discussions revolved around societal rights and obligations stated in the Nigerian Constitution regarding the government's responsibility to provide access to healthcare, shelter, food, employment, and education. Recommendations were made, emphasising the need for properly designed and operated water treatment systems, prioritising water management, the importance of considering local conditions and the use of appropriate technology in ensuring the success of projects. Financial support from international organisations is essential. However, local commitment is likewise crucial for long-term sustainability.

Keywords: water treatment; wastewater treatment; water pollution; water resource management; effluent discharge; waste management.

INTRODUCTION

Throughout history, water use for several purposes has played a crucial role in human civilisation. Over time, humans deeply understood the importance of clean and accessible water and the risks associated with contaminated water. Early civilisations used filtration techniques like sand, charcoal, and boiling as their water treatment. The advancements around water treatment occurred in the 19th and 20th centuries when pioneers like Louis Pasteur and Robert Koch contributed to developing the germ theory, which established a link between microbial contaminants and waterborne diseases [1]. Such discoveries have been known to be part of the foundation for implementing more effective water treatment processes. In recent years, the treatment technologies and methods have only advanced further.

However, even with these advancements, some parts of the world, mainly developing nations, still lack efficient water and wastewater treatment processes. Nigeria's water and wastewater treatment infrastructure experiences considerable challenges due to several variables, including population growth, poverty, corruption, urbanisation, industry and climate change. Nigeria's Federal Ministry of Water Resources (FMWR) and UNICEF stated in the WASHNORM 2021 re-

port that only about 11% of the entire population could access essential drinking water and sanitation (WASH) services [2]. Also, only 14% access safely managed drinking water supply services [2]. Water being a crucial basic necessity means that its uses should be made more sustainable to reduce waste, and wastewater should be treated appropriately and disposed of, but this is hardly the case in the country. Wastewater in Nigeria comes from various sources such as households, markets, hospitals, agriculture and industry and is mainly discharged into the environment without treatment. A study reported that over 80% of most industrial wastewater (tagged hazardous) does not receive therapy in Nigeria.

Untreated water and wastewater entering the environment leads to degradation, transmission of illnesses, pollution of water sources and destruction of ecosystems (mainly aquatic habitats). Therefore, adequate water and wastewater treatment is vital for preserving and sustaining human life, health, and environmental and socioeconomic development.

Climate change impacts, such as fluctuating weather, rainfall patterns, and temperature increase, impact Nigeria's water and wastewater treatment systems. Climate change in Nigeria has increased the severity and frequency of floods, and rainfall intensity is projected to increase [2]

steadily. This may negatively impact wastewater treatment plants and further discharge untreated wastewater into the environment.

RESULTS AND DISCUSSION

1. Water Treatment in Nigeria

1.1. Overview of Water Treatment Methods and Technologies Used in Nigeria. Treating water entails improving its aesthetic qualities and making it useful for different purposes like drinking [3]. As far back as early 4000 BC, the Greeks and Sanskrits recommended water purification methods to improve its taste and odour [4]. Some treatment methods include filtering, exposure to sunlight, and boiling. In Nigeria today, treatment methods combine old methods like boiling and new techniques like Ultraviolet (UV) disinfection, membrane filtration, and reverse osmosis.

Obtaining biologically safe water is crucial to preventing exacerbating waterborne disease outbreaks, a growing challenge for tropical countries like Nigeria [5]. Millions of people across developing countries like Nigeria rely on polluted water for drinking and other uses due to a lack of water treatment, which has enormous health and environmental impacts [6].

Although efforts are poor, developing countries like Nigeria employ large-scale Central Source Treatment Systems (CSS) and small-scale point-of-use (POU) treatment systems due to inadequacies and challenges facing water treatment. The CSS involves water treatment at a central location and distribution from the source to other areas. This is usually done using tankers when no piping system is in place and risks contamination or recontamination during transportation. POU system, as the name suggests, involves treatment on a smaller scale where the water is directly being used. Both CSS and POU, when sustainably implemented, can help meet water demands. In Nigeria, many communities still rely heavily on untreated surface water supplies, which has been reported to lead to increased waterborne disease cases [5]. The importance and benefits of treating water, especially in developing nations like Nigeria, with a surging population, cannot be overemphasised. Figure 1 shows basic water treatment steps in developed countries, and widespread adoption is needed in Nigeria.



Figure 1 – Drinking water treatment [7]

1.2. Current Status and Challenges Facing Water Treatment in Nigeria. The research found that some challenges facing modern conventional water treatment technologies in Nigeria are lack of maintenance, poor power supply, security, and policy issues [3]. Climate change, floods, and water scarcity in some areas also pose serious threats [5]. Climate change worsens as it causes fluctuating weather and rainfall patterns, affecting water supply and quality. There is a huge financial gap in Nigeria's water and sanitation sectors [8], and these challenges must be addressed if the country is to achieve its water and sanitation targets. Authors [9] stated that the water-supply infrastructure, which handles treatment, pumping, storage and distribution of safe drinking water, faces challenges of quality and damage from catastrophes like floods and other crises which lead to contamination and disease infestation. It was also found that the water sector faces a lack of public awareness and capacity building. Nigeria's poor waste management system poses a significant threat to water contamination, which can defeat the purpose of water treatment. An article stated the relationship between waste management and water quality, stating that sustainable waste management helps improve drinking water quality and availability [4, 10].

There have been efforts to enhance water treatment technologies and infrastructure in Nigeria, but these meagre efforts continue to meet considerable challenges during the treatment, supply, and monitoring/regulation phases. Authors [11] reported that ecosystems could be severely affected in Nigeria due to ineffective treatment systems. The research also noted that wastewater national discharge requirements are not met by the treatment plants, leading to further environmental degradation. The water sec-

tor in Nigeria can not optimally function if all the other sectors are poorly managed. Access to clean water and technologies can only work with electricity, good transport and policy infrastructure. This has led to many researchers calling for adopting more integrated systems vertically and horizontally across sectors.

2. Wastewater Treatment in Nigeria

2.1. Overview and Current Status of Wastewater Treatment Methods and Technologies Used in Nigeria. Clean and improved water access remains unsustainable in Nigeria, as Reported by UNDP in 2015 and WASHNORM in 2018. Wastewater discharged from households, pharmaceuticals and other industries remains a critical issue [12], leading to environmental degradation, health impacts and economic risks. The social, economic, health and ecological effects of untreated and unregulated wastewater prove very costly, as seen in countries like India, where an epidemic outbreak linked to wastewater caused an estimated \$200 million loss [13]. A hepatitis outbreak in Shanghai, China, also related to unsustainable wastewater systems, had colossal health and economic costs [14]. Finland's two episodes (2016 and 2018), linked to Wastewater intrusion into the distribution system, proved costly [15]. A 2010 waterborne disease outbreak in Lagos [16] had severe negative impacts.

In several other countries like Kuwait, Australia, Israel, Germany, the United Kingdom and the United States of America, wastewater treatment & reuse is an integral part of the water demand management (WDM) schemes [17]. Evaluating and implementing such plans sustainably across Nigeria will help reduce pollution, degradation, and health and economic losses. Research reported that Kano (Nigeria's 3rd largest city) had poor treatment and storage facilities for wastewater, and their wastewater was mostly being discharged into the environment.

According to [18], Nigeria's wastewater treatment focuses on removing biological oxygen demand (BOD). It often gives minimal consideration for removing phosphorus and nitrogen, which are also in high concentrations [18]. When these nutrient-packed wastewater effluents are released into the environment, they often lead to eutrophication.

Twenty-six wastewater plants in Nigeria's urban cities were listed in a research paper, and 22 reported having functional and four non-functional systems. These non-functional sewerage plants are in Ifuruga, Port Harcourt, Rivers State, Makurdi central, University College Hospital (UCH), Ibadan and Kano central. The type of treatment and geographical distribution were also listed [19].

The treatment methods listed are:

1. Biological treatment. In this treatment, micro-organisms can feed on complex materials to reduce the BOD level and turn them into simpler forms for further treatment.
2. Mechanical Treatment. Here, biological, physical and chemical procedures are engaged to achieve the desired treatment outcomes. A series of tanks, pumps, blowers & grinders are used, and equally regulatory and control steps are taken. Methods such as activated-sludge, trickling filters, and oxidation ponds are used.

Table 1 shows the states, current status, and treatment method, while Figure 2 shows the geographical spread of the sewerage plants.

Table 1 – Wastewater treatment and collection plants in Nigerian Urban cities [19]

State	Location	Treatment Method	Status
FCT, Abuja	Wupa central Plant	Mechanical	Functional
Markurdi	Markurdi Central	Mechanical	Not Functional
Kaduna	Nigerian Brewery, Kaduna	Mechanical	Functional
Kano	Kano Central	Mechanical	Not Functional
Enugu	Abakpanike Estate	Biological	Functional
Edo	Nigerian Brewery, Benin	Mechanical	Functional
Delta	NNPC, Warri, Shell Petroleum Main Office Staff Quarters Warri	Mechanical	Functional
		Mechanical	Functional
Rivers	Ifuruga Estate, Rivers Etope Estate, Rivers Chevron Office, Rivers Shell Petroleum office,	Mechanical	Not functional
		Biological	Functional
		Mechanical	Functional

State	Location	Treatment Method	Status
Lagos	Abesan	Biological	Functional
	Oke Afa	Biological	Functional
	Alausa	Mechanical	Functional
	Olusosun	Biological	Functional
	Nigerian Brewery, Lagos	Mechanical	Functional
	University of Lagos	Biological	Functional
Ekiti	ABUAD	Mechanical and Biological	Functional
Oyo	UCH	Mechanical	Not functional
	University of Ibadan	Biological	Functional
	IITA Ibadan	Mechanical	Functional
	Nigerian Brewery, Ibadan	Mechanical	Functional
Osun	OAU, Ile-Ife	Biological	Functional
	Nigerian Brewery, Ilesha	Mechanical	Functional
Ogun	Agbara Industrial Estate	Mechanical	Functional

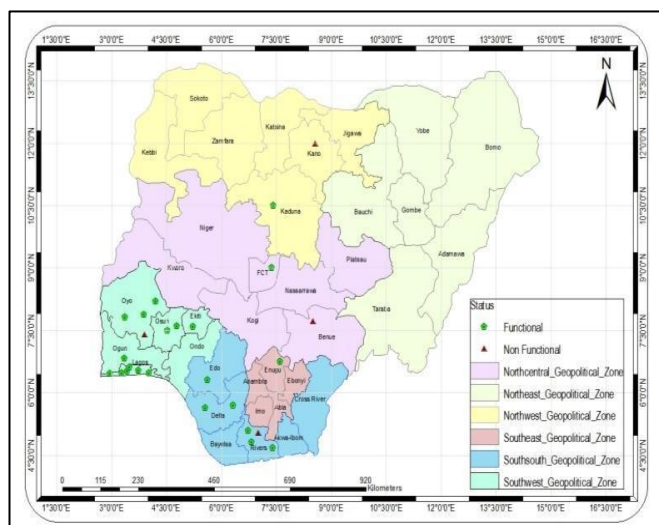


Figure 2 – The Geographical Spread of the 26 wastewater Collection and treatment plants [19]

In Nigeria, the effectiveness of the different Wastewater Treatment technologies varies depending on the treatment method used and the facility's treatment capabilities. Despite the efforts and options available today, untreated wastewater discharged into the environment poses significant challenges, leading to several health and environmental issues [20].

2.2. Challenges Facing Wastewater Treatment in Nigeria.

Some challenges that impact the ef-

fectiveness and efficiency of Wastewater Treatment in Nigeria include:

1. No unstable electricity can hinder or slow down wastewater collection, treatment and safe storage [21].
2. Poor waste management can lead to contaminants getting into water bodies [22].
3. Climate change causes changing weather patterns, hurricanes, floods, or tornadoes [22].
4. Negligence, poor monitoring and evaluation of water and wastewater treatment systems.
5. Population growth, industrialisation and urbanisation have exacerbated unsafe and untreated Wastewater discharge issues. A Lagos State Environmental Protection Agency (LASEPA) report stated that a galvanising and a metal company released their oil and sludge untreated into water bodies [23]. Industrialisation, which has seen a rise in businesses and industries, has also increased pollution and unsafe acts relating to wastewater handling.
6. Poor infrastructure lacks or abandoned (stagnant) central sewerage systems like in Abuja and Lagos [24].
7. Policy issues. There is no review of current laws and lack of regulation compliance.
8. Poverty. The National Bureau of Statistics highlighted in the 2022 Multidimensional Poverty index survey that over 63% of Nigerians (over 133 million people) are multidimensional poor. This has significantly impacted safe water and wastewater treatment and use, exacerbating existing issues and hindering equitable and sustainable water services provision.

9. Corruption has had a detrimental impact on all sectors, including the water sector, undermining all efforts towards achieving efficient water and wastewater treatment services and providing sustainable and clean water to the entire population:

- corruption leads to misallocation and diversion of funds and resources, resulting in poor investments in infrastructure, poor maintenance and poor service delivery;
- lack of accountability, as corruption, creates a positive feedback loop, which leads to more difficulties in mitigating these challenges;
- corruption creates inequality, as roles are often to individuals not out of competence but out of

connections to the elite, leading to weaker anti-corruption measures and poor and unsustainable water systems.

10. Lack of adequate finance. This causes weak investments in the sector, little or no operation and maintenance structures, and poor technological advancements and makes affordability for the users a big challenge, leading to environmental injustices and inequities [21].

3. Technological advancements in water and wastewater treatment

3.1. Recent Technological Advancements in Water and Wastewater Treatment. In Nigeria, the technologies used in wastewater treatment consist mainly of primary treatments like screening, filtration, centrifugation, sedimentation, coagulation, and flotation. These old water and wastewater treatment methods needed improvement because of the recent increase in strict water quality standards. There is a need for modern technologies because they not only reduce energy consumption but are also eco-friendly, more reliable, cleaner, and increase sustainability [25]. Countries that have implemented these approaches have witnessed a continued improvement in the efficiency by which energy, nutrients, and other chemicals are recovered from treatment plants, helping create a sustainable market and becoming a revenue generation source for wastewater processing facilities. The recent advancements in water and wastewater treatment point toward advanced biological therapies; some of these newer technologies are discussed further in this work, and depending on the sewage characteristics and contaminants it contains, it might require only one of these treatments or combined.

3.1.1. Biological treatments. The Biological approach uses indigenous bacteria to destroy contaminants, including nitrate and perchlorate. Studies show 85-90% of contaminant removal using biological therapies. Generally, the process involves a bioreactor containing the bacteria in a media bed. As contaminated water flows through the bed, the contaminants react with the bacteria and an electron donor and nutrients. It produces biomass and other non-toxic by-products. In this way, the biological treatment chemically "reduces" the contaminant in the water. This method does not require chemicals or a lot of energy; instead, it exploits the natural ability of microor-

ganisms to survive in unseemingly harsh conditions to treat contaminants, some of which are listed below.

A. Reverse Osmosis (RO) / Nanofiltration (NF)

As the name implies, reverse osmosis is the reverse of the osmosis process [26]. It involves an external force that causes the water to flow through a semi-permeable membrane from a higher to lower solute concentration. Only low-weighted substances flow through the membrane, retaining the high-weighted meanings, including many undesirable contaminants. At the same time, nanofiltration is a technology that separates different fluids or ions using membranes. Due to this combined process's ability to function at low pressures, it is employed in conditions where vital, moderate inorganic and organic removal are sought, and more salts can be absorbed. The treated water is known as permeate, and the portion that does not pass through the membrane (about 15-30%) is known as concentrate.

RO and NF are valid for the removal of a wide range of contaminants, including many inorganics, dissolved solids, radionuclides, synthetic organic chemicals, salts from brackish water or seawater, removal of hardness, colour, odour-causing compounds, and some disinfection by-product precursors.

B. Aeration processes

Aeration is the process of adding air in its dissolved form into wastewater to allow biodegradation of the organic materials by transferring contaminants from water to stand in the presence of aerobic bacteria. Adding oxygen stimulates the activity of the bacteria, and the resulting 'purified' water trickles out through pipes for further treatment.

This approach can be used to reduce up to 90-99% of biodegradable organics in the water, including phosphates, nitrates, volatile organic compounds, dissolved and suspended organics, Hydrogen sulfide, Carbon dioxide, chemical oxygen demand (COD), biological oxygen demand (BOD), and other pollutants. Oxidation ponds, aeration lagoons (e.g., PTA), and activated sludge are the principal techniques used to carry out the aerobic process. The equation gives a simple depiction of aerobic degradation.

Organic-matter + O₂ + Bacteria → CO₂ + H₂O + Bacteria + Byproducts.

Packed tower aeration (PTA) is mechanically designed to use towers filled with a packing media to increase the area of water exposed to non-contaminated air. Water falls from the top of the building through the packing media while a blower forces air upwards through the tower. In this technique, volatile contaminants with concentrations below 1 µg/L pass from the water into the air. The more volatile the contaminant, the more easily PTA will remove it. It generates no liquid or solid waste residuals for disposal.

In the activated sludge process, the sewage is pumped into an aeration tank mixed with air and bacteria-laden sludge. This sludge-sewage mixture is allowed for several hours, during which the bacteria break down the organic matter into harmless by-products. The activated sludge, consisting of billions of bacteria and other tiny organisms, can be reused for new sewage. The partially treated effluent then flows to another sedimentation tank to remove excess bacteria.

For aeration to be adequate, there must be a sufficient and evenly distributed air supply. Bacteria cannot break down the incoming organic matter in a reasonable time, resulting in septic conditions that can become toxic.

C. Anaerobic processes

Anaerobic treatment involves the degradation of organic pollutants by microorganisms in the absence of air. When no free dissolved oxygen is in the wastewater, facultative anaerobes break down complex organic substances, producing carbon, biogas, and sulfur-based organic molecules through biochemical events. Examples of anaerobic treatment systems are up-flow anaerobic sludge bed (UASB) reactors, anaerobic filter reactors, and anaerobic Lagoons. The equation represents the anaerobic process.

Organic-matter + Bacteria → CO₂ + CH₄ + Bacteria + Byproducts

This approach minimises the number of bacteria in wastewater. Anaerobic technologies are generally used as pre-treatment in streams rich in high organic material (BOD, COD, or TSS) before the aerobic process. It is a more environmentally benign process than aerobic wastewater treatment as it generates by-products that can be used as fertilisers. It does not require a big reactor capacity or oxygen, reducing the power needed to deliver oxygen in the aerobic approach.

3.1.2. Chemical Treatments. These are efficient chemical methods to remove organic contamination that cannot degrade using biological processes in water and wastewater.

A. Oxidation / Reduction

Redox reactions, as it is generally called, involve different advanced phases of reduction and oxidation reactions that aim at effectively removing chlorinated hydrocarbons and pesticides from wastewater. Ozone helps oxidise iron and manganese in healthy water. As such, oxidation removes problematic biodegradable chemicals. Photochemical purification occurs when UV light reacts with ozone to create hydroxyl radicals. Reduction processes are needed to convert heavy metal ions into easily dissolved sulfides. These Advanced Oxidation Processes (AOP) destroy antibiotics, hormones, cytostatic drugs, and other anthropogenic trace chemicals which can not biodegrade.

B. Electrodialysis

This method involves the use of two electrodes that have Ion-selective semi-permeable membranes (anion or cation exchangers) arranged in parallel or series, which allows water-soluble ions (anions and cations) to flow out of the system once an electric current flows through them. This process is also called demineralisation. Voltage is supplied to two electrodes in a continuous or batch process. Factors such as pH, temperature, nature of contaminants, membrane selectivities, flow rate, and volume affect the removal of dissolved solids. It is mainly applied in the treatment of salty water. TDS concentrations up to 200 mg can be reduced by 90%.

For all levels of wastewater treatment, disinfection is an essential last step. Ultraviolet radiation is a better alternative for dechlorination than chlorine because chlorine residuals in the effluent may adversely affect aquatic life. Still, UV will disinfect without leaving any residual in the effluent.

Drawbacks: Chemical methods are challenged by increased chemical usage, difficulty in disposing of sludge as it cannot be reused as fertiliser due to its chemical content, scarcity of experienced labour, and increased energy needs.

3.2. Case studies. Using advanced treatment technologies with traditional methods will lead to more efficient wastewater treatment and increased reuse and recycling of treated water.

Some case studies that justify this claim are highlighted below.

Case 1 – Amherstburg consolidation of three sewage treatment plants into one. Amherstburg, a town in Ontario, Canada, with a population of 21,936, created a system that combined three sewage service areas into one. This was because one service area was approaching approved treatment capacity limits while the other was far behind in meeting the current requirements for effluent quality. In this way, space was conserved, resources, expansion in service capacity, and the goals of the Detroit River Remedial Action Plan were met. The upgrade produced many environmental, social, and economic benefits because it transitioned from traditional primary treatment to an advanced biological (activated sludge, UV disinfection) treatment process.

Some upgrades to the Amherstburg PCP included [27] headworks and screening, installing primary clarification and aeration systems, installation of secondary treatment technologies, including bio-reactor tanks with fine bubble diffusion and secondary clarifiers, improvements to the dewatering system, installation of UV disinfection system and setting up a unique two-stage bio trickling odour control system that significantly minimised the odour coming from the plant.

Some environmental benefits include decreased energy use and greenhouse gas (GHG) emissions, improved wastewater quality, decreased water consumption, reduced hazardous residuals, minimised environmental impact, and protected biodiversity and ecosystem. Some social benefits include protection and improvement of public health, increased opportunities for recreational activities, and increased access to shared space. Economic benefits include reduced operating and maintenance costs, deferred or avoided capital expenses, increased district land values, the increased potential to attract new businesses, increased ability to attract new residents, and support for local business development.

Case 2 – Wastewater Treatment and Reuse – Elat-taouia, Morocco. Like Nigeria today, many rural areas of Morocco significantly lacked Wastewater treatment in the past. About 70 million cubic meters of untreated wastewater irrigated an area of more than 7000 hectares yearly. In 2003, An innovative wastewater treatment technology was established based on the pilot-scale research carried out at the Institute Agronomies et Vétérinaire Hassan II to treat the town's wastewater

[28]. The wastewater system consists of two stages. Stage 1 provides primary and secondary treatment, which consists of two up-flow anaerobic reactors arranged in series, followed by a settling chamber and sludge drying beds. Stage 2 offers tertiary treatment, consisting of a high-rate algae pond and two maturation basins in series. Stage 1 was completed in 2006, while Stage 2 was completed in 2011. The system could remove 85% of the chemical oxygen demand (COD) and 80% of total suspended solids (TSS).

The essence of this system was to improve on the limitations of the existing form of water treatment used back then, which was the lagoon systems. The upgrade not only led to an effective wastewater treatment but also helped reduce the area occupied by the basins, simplification of sludge management, recover of biogas and elimination of odours, reuse of treated wastewater for agricultural production and demonstrate the technology's capacity at full scale.

3.3. Economic analysis. An economic analysis of the costs and benefits associated with implementing sustainable wastewater management strategies in Nigeria can provide valuable insights into such an initiative's potential financial gains and challenges. The prices of implementing sustainable wastewater management strategies can be substantial, including capital investment and operational and maintenance costs. However, the benefits of these strategies can also be significant and far-reaching. Some of the primary benefits of sustainable wastewater management strategies are protecting public health, promoting environmental sustainability by reducing pollution, conserving natural resources and generating revenue from the recovery of resources from wastewater, such as energy, nutrients, and water. Implementing sustainable wastewater management strategies in Nigeria also faces significant challenges. The lack of infrastructure and institutional capacity can increase the costs of implementing these strategies, which may require substantial infrastructure and human resources investments. The availability of funding and political will can also be a significant challenge in Nigeria.

The three types of actions needed for wastewater management are wastewater collection, wastewater treatment, recovery of resources from wastewater, and safe reuse. In wastewater management, cost functions are a suitable tool to help analyse costs. They provide a mathematical

framework for analysing the relationship between the inputs used in wastewater management and the outputs generated. They can be used to determine the cost of various wastewater management activities and identify cost-saving measures. As reported by [8], there are three principal methodologies for developing cost functions related to "wastewater economics." These are the engineering-based, statistical-based, and econometric-based methodologies. The engineering-based procedure involves analysing wastewater treatment's physical and chemical processes and associated costs. The statistical-based method analyses historical data on wastewater management costs to develop cost functions. The econometric-based methodology uses economic models to estimate the costs of various wastewater management activities. Previous studies show that the statistical method is the most common approach for developing cost functions in wastewater management.

A couple of existing studies have developed cost functions for wastewater systems. An estimate of wastewater treatment costs based on an engineering approach to provide insight into the relationship between wastewater treatment costs and the volume of wastewater treated in Spain. The authors developed a method for estimating the cost functions of wastewater treatment based on Spanish data. They identified variables such as the volume (V in m^3/year) of wastewater treated, plant age, and removal efficiency of pollutants, and estimated costs (C in $\text{€}/\text{year}$) for removing suspended solids, organic components, nitrogen, and phosphorus. The estimated cost functions for seven different treatment levels are presented below.

Examples of cost functions of different wastewater treatment systems		
TECHNOLOGY	COST FUNCTIONS	R ²
Extended aeration without nutrient removal	$C = 169.4844V^{0.4540} e^{(0.0009A+0.6086SS)}$	0.61
Activated sludge without nutrient removal	$C = 2.1165V^{0.7128} e^{(0.0174A+0.1512SS+0.0372BOD)}$	0.68
Activated sludge with nutrient removal	$C = 2.518V^{0.7153} e^{(0.007A+1.455COD+0.158N+0.243P)}$	0.73
Bacterial beds	$C = 17.3671V^{0.5771} e^{(0.1006A+0.6932COD)}$	0.99
Peat beds	$C = 1,510.84V^{0.2596} e^{(0.0171SS)}$	0.52
Biodisk [®]	$C = 28.9522V^{0.4493} e^{(2.3771SS)}$	0.81
Tertiary treatment	$C = 3.7732V^{0.7223} e^{(0.6721COD+0.01958N+0.7603P)}$	0.90

Figure 3

The cost functions presented in the table depict the relationship between the cost of annual operation, volume treated, percentage of pollutants

extracted, and plant age for each technology. Using these cost functions helps determine the most suitable technologies based on the importance of wastewater to be treated and the set objectives for removing contaminants.

In conclusion, an economic analysis of the costs and benefits of implementing sustainable wastewater management strategies in Nigeria highlights the initiative's potential financial gains and challenges. However, the prices of implementing these strategies can be substantial, and overcoming the challenges associated with implementing them requires significant investments in infrastructure, institutional capacity, and political will.

3.4. Public health impacts. Advanced wastewater purification processes involve biological and chemical treatments sensitive to the environment. They can go as far as resulting in climate change, changing populations, health challenges and ageing infrastructure [29]. Feces and urine from humans and animals may carry many disease-causing organisms known to cause various environmental and health problems.

Humans risk exposure to various diseases from wastewater in multiple ways. Pathogens in wastewater may be transmitted through direct contact with sewage, poor living and eating hygiene, or indirect contact with human, animal, or insect carriers. Diseases contracted by drinking contaminated water or eating contaminated food are often called waterborne and foodborne diseases. Harmful chemicals and heavy metals found in wastewater, such as cadmium, copper, lead, nickel, and zinc, are needed in trace amounts by our bodies but can be harmful in larger doses and lead to acute poisoning. Other potentially toxic substances can enter wastewater from various sources, such as local businesses, industries, or stormwater runoff. These substances include pesticides and chemicals like chlorinated hydrocarbons, phenol, PCBs (polychlorinated biphenyls), and benzene. In communities where wastewater treatment is inadequate, some health complications are due to reduced drinking and bathing water quality, Increased burden of disease due to unsafe food (contaminated fish, vegetables, and other farm produce), Increased risk of diseases when working or playing in the wastewater-irrigated area and Increased financial burden on health care, consuming food made with contaminated water, eating food improperly handled carriers or con-

taminated by irrigation with polluted water or fertilised with untreated sludge.

Preventing potentially harmful substances from polluting water is always the best strategy for protecting the health and the environment and preserving valuable water resources for community use and recreation. The effectiveness of water treatment can be limited when water is heavily contaminated with waste. So, to ensure safe drinking water, communities need clean water and effective wastewater treatment. In addition, communities need to make sure that untreated wastes are not disposed of improperly on land or water where people can come in direct contact with it or where it can attract disease-carrying insects or animals.

3.5. Stakeholder engagement. Stakeholder engagement helps legitimise final decisions. Their role is vital, primarily because of the accountability that comes with publicly funded projects toward society in general. They seek to share ongoing reforms, projects, lessons, and good practices in support of better governance in the water sector. Their roles involve the following:

1. Advise governments to implement effective water reforms through policy dialogue across decision-makers at different levels.
2. Provide technical platforms to discuss water management and treatment improvements through peer-to-peer exchanges, [30] public participation in data collection, and situation analysis.
3. Provide an open consultation mechanism to raise the profile of governance issues in the developmental agenda [30].
4. Support the implementation of the technologies designed for water and wastewater treatments and participate in selecting the appropriate treatment system.
5. Contribute to the design of water usage and governance principles and engage decision-makers at all levels, within and outside the water sector, to commit to action.
6. Stakeholders should set up local committees that can help through programs to educate and ensure local businesses, homeowners, and industries properly pretreat and dispose of the waste, wastewater, and household chemicals they generate. Furthermore, ensure that communities mobilise people to set up special dates and locations for collecting these substances.

One of the drawbacks of stakeholder engagement is the possibility of having conflicting interests in resource allocation and costs, which can delay final decision-making. Therefore, the project management team should engage with stakeholders to balance the project's and stakeholders' values concurrently. This creates a balance between economic, environmental, and social goals. Despite these acknowledged drawbacks and challenges, stakeholder engagement is increasingly encouraged in water resource management.

4. Policy and Regulatory Framework for Water and Waste Water Treatment in Nigeria

The Organization for Economic Cooperation and Development (OECD) streamlined practices and principal frameworks that provide conditions for effective, efficient, and inclusive water policy, therefore, the OECD Principles on Water Governance. The Regional Development Policy Committee of the OECD endorsed the principles in 2015 as a framework for understanding public policy responses: a plan to promote sound water governance as a means to a goal. It has been noted that water crises are frequently primarily "governance" problems, particularly given the fragmented nature of the water industry and its bleak prognosis, which "requires doing better with less" [31]. Based on these findings, the governance framework project was created to motivate all relevant parties to engage in conversation to formulate solutions and implement them [32]. The implementations show improved access to potable water, improved sanitation services, and increased water security. The program was expected to enhance the governance process from policy conception to implementation, according to [33]. Although this goal may encourage integrated water resource development and management, the effects of deteriorating water security on food, energy, and the environment have not been fully considered [34]. Because of this, a water governance gap needs to be filled by creative framework directives.

Nigeria's government owns natural resources, and relevant agencies regulate their exploitation [35]. However, the resources were deregulated to improve access to the water supply as a human right, a claim that tends to meet the water needs of the growing population. Deregulation ought to have included a water policy to guarantee that sound water management regulatory

frameworks are successfully implemented and enforced for the benefit of the public, but this seems to be a challenge, especially given that water managers, which include experts, are no longer consulted before water development. As a result, artisanal workers who provide services at a lower cost than experts have taken over the most private aspects of the development of water infrastructure, including some government contracts, leading to indiscriminate water exploitation, even to the point of drilling boreholes without taking into account ecological risks, especially some tendencies of over-abstraction. Then, stakeholders looked to become detached from water supply planning, which appeared to jeopardise water security and sanitation services, particularly the lack of interest in examining areas vulnerable to natural and land-use-related threats. As a result, general people are more susceptible to severe health disorders linked to environmental activities, primarily BBS, lung, liver, and blood cancers. These health problems are a symptom of inadequate water governance. Similar to [36, 37] instances, they attributed the situation to a dual-purpose mindset brought on by a conflict of interest in the governance structure.

Other Nigerian cities have no central sewage systems, except for a few neighbourhoods in Abuja and a few locations in Lagos. Therefore, individual residents or businesses manage wastewater through a decentralised wastewater management system. As a result, one of the most apparent types of pollution in the nation is water pollution. Waterways can absorb hazardous compounds significantly, but local pollution has already exceeded this capacity. As a result, it is clear that contaminants in various aquatic habitats are excessive, and an effective environmental management and monitoring program is urgently needed [38]. The law in Nigeria mandates that businesses, regulated private or public facilities, such as hotels and hospitals, treat their wastewater to a predetermined quality before releasing it into the environment. However, wastewater treatment before release or reuse by these facilities is typically improperly done or nonexistent. Because most industries in Nigeria lack adequate effluent treatment facilities, they discharge their effluents into water bodies without sufficient treatment, frequently into the nearby water bodies [39, 40].

The result is that without effective implementation or enforcement, the standards have devolved into theoretical regulatory instruments.

Although the restrictions are still considered insufficient enforcement, they exist in writing. Even though these instructions have been published in gazettes and the Nigerian environmental agency also regularly inspects regulated sites, compliance has often been deficient. The literature claims that ecological laws in Nigeria are either not enforced at all, are poorly implemented, or are frequently enforced to collect money. A recent assessment also noted that political and other factors contributed to the failure of attempts made by various administrations to reduce the incidence and effects of water contamination through the formation of laws and, in many cases, decrees [41]. The lack of effectiveness of the institutions established to protect the environment has frequently been attributed to political interference, a lack of coordination among the relevant agencies, and a lack of institutions or laboratories for environmental quality monitoring, among other factors.

According to [38], the regulatory framework for handling wastewater-related environmental issues does not appear to have produced the intended outcomes for which it was first developed, necessitating the adoption of concrete reform measures. Poor policymaking in Nigeria exacerbates problems with cleanliness, water, security, safety, and well-being and encourages potential issues, including hunger, disease, poor governance, and conflict risks [42]. By failing to address the shortcomings faced by women and children, Nigeria's regulatory frameworks have been unable to contribute to achieving a fair admission to protected and clean drinking water for everyone [43]. Suppose an integrated approach is taken by monitoring all sectors and sources from which wastes, wastewater and contaminants emerge to manage and treat their wastes and effluents and adopt sustainability thinking in their design processes. In that case, there will be a significant improvement. Bans and incentives could act as regulatory tools used to improve the processes.

4.1. Implementation Challenges and Potential Solutions.

As a result, dealing with the water presents several challenges for relevant authorities [42]. One of the current challenges in water management is how to allocate water effectively among competing uses, particularly in [hydro-power] energy production and flow [44], which constitutes a complex interaction and can occasionally hurt the ecosystem [45], especially in places like Nigeria where climate change is caus-

ing some rivers to become ephemeral [46]. To ensure a sustainable water supply, different relevant decision-making agencies control management policies [46]. As a result, the management of water resources is characterised by the engagement of several stakeholders with conflicting goals and interests [1]. Even though Integrated Water Resource Management (IWRM) was developed by the Global Water Partnership (GWP) to balance the conflicting interests, the implementation has not been successful [37]. This may be because water governance lacks creativity.

Unsuitable regulations, a lack of infrastructure investment, ineffective wastewater treatment technologies, improper sludge management, and a lack of monitoring and awareness of pollution levels are a few of the difficulties that must be overcome during wastewater management. According to [38], Nigeria's issue with inappropriate wastewater management is closely related to the institutional structure that the Nigerian government has built up for environmental monitoring and control. Public policy responses can close the gap between the design and implementation of water policies. Still, they will only be effective if the guidelines are coherent, have sufficient information and well-designed regulatory frameworks, and the stakeholders are appropriately involved, have integrity, and have the necessary skills. These requirements primarily focus on implementing the OECD [Principle 11] on water governance, intending to promote water governance frameworks that aid in managing trade-offs across generations, from rural to urban areas. As a result, the multi-stakeholder (bottom-up) dialogue method is developed.

Innovative framework directives are required to close this water and wastewater treatment gap. When the appropriate authorities, levels of government, responsible stakeholders, and local communities work together, the directions can be provided with multi-stakeholder engagement for general acceptability "even as voluntary roles." Indicators of effective water governance that will be adopted and put into practice [Principle 8] can be found in the universal acceptance of this [novelty] course. Such indicators are designed as a self-evaluation framework for the government and the stakeholders to carry out the dialogue on the water governance system, track timely progress, and map out the necessary actions to close the identified gaps [47]: implementation strategy developed in the OECD [prin-

ciple 1] based on clear roles and responsibilities across all levels of government.

Although identifying the duties and responsibilities for each level of water governance is crucial, the focus of the current study was on shared roles and responsibilities, which is a suggestion to strengthen the bottom-up and multi-stakeholder process. However, because the concepts of water governance are theoretical, they are not applicable at the bottom level or local scale, where communities and municipalities predominate [33]. It appears from this review that the bottom corridor's local municipalities won't be able to work out the bottom-up dialogue process if they are unfamiliar with the terms used in the framework of the principles. The OECD Principles on Water Governance have not been well known at the grassroots and appear to be hanging at that level. Therefore, it is in the best interest of the relevant [governance] authorities to further increase public exposure to OECD principles by interpreting data from River Basins through publications (at regional conferences) of local practical examples.

A helpful approach for more economical watershed management can be created by identifying severely polluted areas [48]. The country must adhere to the OECD Principles on Water Governance to strengthen the Nigerian water governance system and provide new input indicators that track actions that help produce positive results, such as budgeting/planning for risk assessment and regulatory and preventive predictive measures. These practices promote ecological health, which measures the overall impact of sound water management.

Governments must endorse the 12 Principles of Water Governance to develop and implement effective, efficient, and inclusive water policies to stop this governance failure [31]. The first tangible breakthrough that can considerably aid in creating better water policies is a tool [32].

The government's commitment to preventing pollution through effective decentralised wastewater management must be shown through appropriate policies that support affordable and accessible wastewater treatment systems and enable increased participation of the regulated community in environmental protection activities and programs. There has to be more coordination between and among the relevant regulators at these three tiers of government since ecological governance in Nigeria is

carried out at the federal, state, and local levels of government. The current policies must be reviewed and updated to more clearly define the roles and responsibilities of the prominent participants in environmental protection. Additionally, rewarding compliance and encouraging facilities to manage wastewater properly are likely to encourage them, and sustainable decentralised wastewater management by the regulated community requires an appropriate regulatory framework. The regulatory framework is intended to give a general overview of environmental laws and regulations to safeguard public health and the environment from potential risks associated with wastewater disposal. However, it appears that neither the regulators nor those who are regulated have been fulfilling the requirements outlined in the To safeguard public health and the environment from potential risks associated with wastewater disposal, the regulatory framework is intended to give a general overview of environmental laws and regulations. However, it appears that neither the regulators nor those who are regulated have been fulfilling the requirements outlined in the rules. By taking into account the current economic and technological conditions, as well as with proper regard for the peculiarities of the receiving local context, it is necessary to critically assess the existing standards and make them more practical and practicable. Setting up and effectively enforcing fair norms and regulations can significantly improve the sustainability of current wastewater treatment techniques in regulated plants. A better understanding of regulated facilities' difficulties and treating compliance issues on an industry-by-industry basis rather than combining all industries can result in a significant change since the traditional "command and control" policy/instrument of enforcing compliance has not produced results. Even though effluent limitation rules are created for whole industries, the discharge limits might be included in licenses given to industrial facilities based on their unique circumstances. Additionally, proper sanctions should be administered to defaulters without re-

gard for their motives or favours within the bounds of the law.

It is necessary to regularly train and strengthen the capability of regulatory authorities who ensure that wastewater management standards are followed. They must be capable of advising the regulated community on wastewater management in a solid technical manner. It is possible to increase compliance with wastewater management rules and their enforcement by paying adequate attention to training staff members of environmental regulatory bodies and educating the regulated community on effective wastewater management. Along with regular staff training, providing the agencies with the tools they need to perform their regulatory duties will give the staff more confidence and show regulated facilities that the agency is serious about preventing the harmful effects of untreated wastewater discharge on the environment. Additionally, the regulated facilities must be adequately educated on the dangers of indiscriminately releasing untreated wastewater into the atmosphere and on effective management techniques that use the area's most advanced, environmentally friendly, and financially viable technology.

The various levels of government must commit financial resources to all aspects of environmental legislation, and they should not be viewed primarily as a means of earning income. These funds are essential for carrying out ecological regulations, personnel training, purchasing the tools required for environmental monitoring, and other monitoring-related logistics. The sectors' difficulties also seem to have a solid financial component. In particular, small and medium-sized businesses (SMEs) should be given credit facilities to help them comply with wastewater management regulations. Additionally, local finance agencies established to support the industry may be able to help mobilise the funds required to design and execute effective wastewater treatment systems through soft loans and subsidies from relevant financial institutions.

The information gathered from the semi-formal interviews and stakeholder questionnaires [38] allowed for the derivation of a few reasonable recommendations from this study, which are listed as follows:

1. Regarding the financial ramifications, the Nigerian government should ensure proper program and policy implementation by providing critical

agencies involved in environmental management with sufficient money. These agencies should have well-developed institutional frameworks to properly direct the regulated facilities and better enforce rules and standards. This development should be ongoing. Furthermore, credit facilities should be made available to the participating organisations, as the difficulties the industries encounter also seem to be somewhat financial.

2. While lowering the current guideline limits for industrial wastewater discharge in Nigeria may not be simple, establishments may be encouraged to make minor adjustments to comply with the regulations on an industry-by-industry basis. This is because making significant, frequently pricey investments will make it much harder for polluters to increase compliance over time.

3. Based on the best treatment technology that is commercially feasible, effluent standards are the framework by which responsible authorities safeguard the environment and public health from the harmful effects of wastewater. The national discharge standards should be routinely evaluated and updated to reflect the country's current conditions. It is essential to conduct thorough monitoring studies and data gathering on water quality, water use and reuse patterns, and the dilution and assimilation potential of receiving water bodies. The definition of effluent limit values ought to be based on this.

4. Pilot-scale demonstration studies should be conducted using free-of-charge natural treatment methods, such as wetlands, to remove fertilisers and other pollutants. Such systems will reduce the need for synthetic fertilisers and improve the environment for nearby animal species [49].

5. many developing nations have recently used the multi-level contact oxidation method (MLCOP) to treat high-strength wastewater. Due to its numerous benefits, including cheap operating costs, compact footprints, minimal sludge creation, and high treatment efficiency, such novel treatment methods ought to be investigated by Nigerian enterprises as well [50].

6. Because this is a fundamental problem for failing wastewater technology and policies in developing economies, the transfer of advanced or novel wastewater treatment systems from developed countries should be done cautiously [51]. "The sunk nature of highly specialised infrastructures and the ensuing susceptibility of utilities to political and institutional factors make de-

ploying modern wastewater treatment technology challenging. Additionally, it necessitates the participation of numerous actors (utilities, suppliers, contractors) and is influenced by multiple stakeholders (communities, business users, citizens' organisations) who typically have divergent goals [38]. Governments must collaborate with the significant WASH stakeholders to enhance local water governance. It is necessary to strengthen data management frameworks and the local and national authorities' ability to administer and control sanitation systems. Introduce best practice solutions for water preservation in areas where the water supply is insufficient to rank water efficiency as highly important across activities [43].

4.2. Review critical laws and regulations governing water and wastewater treatment in Nigeria, including those related to climate and socioeconomic factors. The Nigerian government has established environmental preservation and conservation institutions over the years. The Federal Ministry of Water Resources (FMWR) was established in 1977 after the National Water Resources Institute (NWRI) and River Basin Development Authorities (RBDA) were founded in 1976 [52]. The NWRI oversees research and workforce training, while the FMWR oversees policy formation and advice. Conversely, the RBDAs provide towns with water for domestic, industrial, and agricultural uses. Similarly, with Decree 58 of December 1988, the government formed the Federal Environmental Protection Agency (FEPA) in 1988 [53]. Specifically in water quality, effluent discharge, and air and atmospheric quality, FEPA's principal objective was to develop national environmental guidelines, standards, and criteria. 1999, this organisation became the Federal Ministry of Environment (FMENV). Even after the FMENV was founded, there was still a gap in the country's ability to enforce environmental laws, rules, and regulations effectively. The federal government established the National Environmental Rules and Regulations Enforcement Agency (NESREA) to fix this issue.

The most recent and significant development in introducing environmental regulating institutions in Nigeria was the creation of NESREA in 2007. The organisation is in charge of the preservation of biodiversity, the development of environmental technologies, and the sustainable use of Nigeria's natural resources in general. The Act

that established the agency gives it the authority to enforce all environmental laws, regulations, standards, and laws in Nigeria, as well as the provisions of international environmental agreements, protocols, conventions, and treaties to which Nigeria is a signatory [54].

The old "command and control" approach to industrial pollution control is still utilised by NESREA, specifying the precise "end-of-pipe" treatment methods that industrial sites must apply. It uses regulations that advocate that no wastewater be discharged from any facility without treatment and exact effluent discharge requirements that must be adhered to by the regulated facilities based on the best technology available. According to the requirements, facilities must install pollution control equipment, make suitable provisions for effluent treatment, and be in charge of all generated wastewater until final discharge. Penalties for non-compliance might include paying fines, imprisoning the individuals at fault, paying any external costs, and closing the facilities. Even though the Nigerian economy is not strong enough for most facilities to meet the country's high wastewater treatment demand, the stipulated effluent standards appear to have been created to correspond to a high level of wastewater treatment technology compared to other developing and developed nations [38].

The Federal Ministry of Environment, state commissioners, and the National Council on Water Resources (NCWR) are all represented on this top water resources policy-making body, which the FMWR governs. Although not all states have a stand-alone ministry of water resources (such as the Rivers State), State Ministries of Water Resources are responsible for policy, regulation, and monitoring passed down to control the local governments. Therefore, while essential water supply-related institutions and procedures are in place across the nation, there is a lot of variance in the management and provision of water between jurisdictions [55].

Authors [56] assert that the Harmful Waste [Special Criminal Provisions] Act [Cap H1 LFN 2004] Law forbids the transport, dumping, and disposal of hazardous waste in territorial waters. There are environmental protection organisations in each of the 36 states. The Lagos State Environmental Protection Agency (LASEPA) law, for instance, allows officers to detain violators who pour raw, untreated human waste into any pub-

lic drain, gorge, or pour any oil, grease, or spent oil, including manufacturing trade waste, into any public drain or watercourse.

The National Environmental (Surface and Ground Water Quality Control) Regulations, 2011, enacted according to section 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007, govern the quality control and required standards of surface waters and groundwater. They also define water pollution violations, impose punishments for such offences, and provide for enforcement. The laws are designed to safeguard water resources for use in agriculture, clean water supply, and aquatic life, among other services. The National Environment Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations state that a permit is necessary:

- a) To store, handle, and transport dangerous toxic waste.
- b) When effluents with constituents are discharged into public drains, rivers, lakes, the ocean, or as an underground injection.
- c) When the oil is dumped into public sewers, rivers, lakes, or oceans or injected underground.
- d) For an industry, a facility, or process line with a new point source of pollution. The agency must receive an application for a discharge permit from such a business or facility.

A violation is responsible for restoring or remedying the polluted environment and paying a fine, compensation, or damages to individuals harmed. Failure to follow environmental regulations can also result in a first-time sentence of up to two years in prison. Terminating the lease, license, and/or permit is the harshest penalty for repeat offenders. National Guidelines and Standards for Water Quality in Nigeria, Nigerian Industrial Standards for Potable Water and Natural Mineral Water, State Water Supply Edicts/Laws, Local Government Water and Sanitation Bylaws, National Water Supply and Sanitation Policy, Federal Ministry of Water Resources, National Water Resources Institute Act, River Basin Development Authorities Act, and Navigable Waterways (Declaration) Act are some other regulatory frameworks for water that make provisions against water pollution [56].

5. Climate Change, Water and wastewater treatment

Climate change and water are intricately intertwined. The complicated effects of climate change on the water are well known. Most climate change products are water-related, including irregular rainfall patterns, decreasing ice sheets, increasing sea levels, floods, and droughts [57]. The United Nations Framework Convention on Climate Change (UNFCCC) received Nigeria's first national report in 2003. Since then, the country has made some progress in managing climate change, even though it does not have a strategy for renewable energy. The government acknowledges climate change threatens its economic well-being and continued progress under its current national development plan. The federal government introduced a national climate change policy in 2015 to direct the execution of climate change measures. According to [56], the policy will provide comprehensive national goals, objectives, and strategies for reducing the effects of climate change.

Nigeria's Climate Change Act of 2021, according to [58], provides a framework for the country to achieve low greenhouse gas emissions (GHG) through inclusive green growth, sustainable economic development, and the implementation of Nigeria's commitment to net zero emissions, which was made public at COP26 in 2021. The National Council on Climate Change is established, and its job will be to carry out the nation's climate action plan. President Muhammadu Buhari signed the legislation on November 18, 2021. This suggests that Nigeria has entered the club of countries that have passed emission-target legislation intending to eradicate carbon emissions. This is perfect for a nation that relies heavily on oil and is considered to be among the world's most climate change-vulnerable nations. Its primary goal is to offer a comprehensive legal framework for achieving Nigeria's long-term climate goals, including a net-zero carbon emission target, national climate resilience, adequate climate finance, and mainstreaming climate change actions into national development priorities. According to the law, efforts to promote inclusive, green, and sustainable economic development for Nigeria are placed within a larger context, including efforts to address climate change [59]. Thus, the law aims to promote the nation's climate-resilient social and economic development while facilitating the intensive and complex cross-ministerial coordination of climate change action and the involvement of businesses and the

civil society needed to achieve long-term climate objectives.

Additionally, it aims to create a systematic approach for the nation to identify the primary climate risks and vulnerabilities it faces and how to improve its current capacity for adaptation to climate change. Nigeria is attempting to prevent the dangers of climate change with the recent progress of passing the Climate Change Act. However, individuals can contribute to this campaign by refraining from actions that abuse the environment, particularly the illegal logging of trees, which ultimately leads to climate change [59]. The stakeholders have all contributed to Nigeria's fight against climate change in different ways. For instance, the Niger Delta Climate Conference and regional Pre-COP25 meeting in October 2019 marked a significant step forward in mobilising stakeholders committed to fighting climate change. This was put on by the Federal University of Petroleum Resources, Effurun, and the African Centre for Climate Actions and Rural Development (ACCARD). The attendees agreed that a wide range of stakeholders needed to be involved in developing shared solutions and mobilising funding and other support for climate management, particularly in the Niger Delta. Additionally, the nation used its first sovereign green bond to finance a few environmental initiatives related to climate change management [60].

5.1 Climate change impact of untreated wastewater on the environment. The most immediate effect of sewage on the environment is its contribution toward the contamination and destruction of natural habitats and the wildlife that live in those habitats by exposing them to harmful chemicals that would otherwise not be present over the natural course. This leads to a high rate of fish mortality, eutrophication, threats to corals, swamp ecosystems, sea grass beds and loss of biological diversity, a significant threat to natural tourist centres. Also, due to the elevated numbers of pathogenic microorganisms (such as viruses, algal bloom and bacteria) present in untreated wastewater, even human health is threatened when exposed to it.

Recent studies reveal that untreated wastewater (particularly ponds) emits a significant amount of greenhouse gases (GHGs), such as methane (CH₄), carbon dioxide (CO₂), and a comparatively low amount of nitrous oxide (N₂O) into the atmosphere. According to [61], the high nutrients in untreated wastewater provide an ideal envi-

ronment for methane (CH₄) production and emission. This emission rate differs according to climatic regions. It is influenced by several biotic and abiotic factors, such as temperature, nutrients and pH (C, N, and P), dissolved oxygen, sediments, and water depth. These parameters are analysed in the table below.

Table 2 – Impact of different factors on greenhouse flux from water bodies

Factors	Correlation with CH ₄ Flux	Correlation with CO ₂ Flux	Correlation with N ₂ O Flux
Water temperature	Increased exponentially up to a specific limit	Positive	Positive
	No correlation	No correlation	-
	-	Negative	Negative
Nitrate concentration	No impact	Positive	Positive
	Negative	-	-
Dissolved organic matter (DOM)	Positive	Positive	Positive correlation
Water pH	-	Positive	Positive
	Non-significant correlation	-	Non-clear correlation
	-	Negative	Negative
Dissolved oxygen (DO)	-	-	Positive
	No correlation	-	-
	Negative	Negative	Negative
Surface area of the pond	Negative	-	Positive
Total nitrogen (TN)	-	Positive	Positive
Total phosphorus (TP)	Positive	Positive	Positive
Sulphate	Negative	-	-
Eutrophication	Enhanced CH ₄ flux	Positive	-
	-	Negative	Negative

The table above shows that Dissolved Organic matter (DOM) positively correlates with CH₄ production and emission from wastewater. Similarly, authors [62] investigated the CH₄, N₂O, and CO₂ emissions from 15 untreated Virginia, USA, water ponds. Dissolving organic matter positively correlates with CH₄ (methane) emissions. Other research shows that CH₄ emissions contribute 94% of the total greenhouse gasses GHG, and the mean CH₄ flux was 15.1 mg m⁻² h⁻¹. Or-

ganic carbon contributes roughly 6% and 20% to total carbon emissions from ponds and reservoirs [63, 64].

Methane's presence in the atmosphere is small compared to CO₂, but it is the most abundant reactive hydrocarbon [65]. Its globally averaged atmospheric surface abundance in 2010 was 1780 ppbv, corresponding to a total atmospheric burden of about 4850 tg methane. The resource [30] reports that methane has more than 80 times the warming power of carbon dioxide over the first 20 years after it reaches the atmosphere, making at least 25% of today's global warming.

5.2. Socioeconomic impact of effluent discharge. Farmers lament that effluent discharge impaired water use in farming areas by hindering them from performing fishing activities. It negatively affects the productivity of other farming activities such as crop planting, livestock keeping, and irrigation, which could be impeded. Consequently, it creates a severe negative impact on the aquatic and wildlife, the farmers and finally on the consumers [66].

5.3. Socioeconomic Factors of Climate Change. As a member of society, man is endowed with certain inherent rights, inalienable, indivisible, and inviolable. In a social contract with the state, the civil authority must uphold his rights as a citizen. In exchange, the citizen fulfils his civil obligations, which include paying taxes and defending the state when necessary [61].

The Nigerian Constitution's Chapter II mentions ECOSOC rights as Fundamental Objectives and Directive Principles intended to guide and influence state policy on governance-related matters. To put it another way, the government should ensure that everyone has access to adequate health and medical care, direct its policies toward ensuring that people have a suitable and proper shelter so they can exercise their right to live in peace and dignity, provide timely and adequate food, a reasonable minimum living wage, and provide pensions for the elderly. Additionally, [31, s. 16-2-d] includes provisions for welfare for the disabled and unemployment and sickness payments. Since the Nigerian governments are not required to abide by these principles, their relevance primarily stems from the voluntary nature of their commitment. It just acts as a guide for government actions and choices in these areas. For instance, this chapter's provisions on the right to employment provide that everyone shall, without any form of discrimination, have the op-

portunity to acquire both a sufficient means of subsistence and enough chance to find an acceptable job [31, s. 17-3-a]. In addition, it states that reasonable accommodations must be made for social, religious, and cultural activities and that working conditions must be fair and humane [31, s. 17-3-c]. It guarantees equal compensation for effort without sex or other discrimination [31, s. 17-3-e]. They are following [31, s. 17-3-b]. It also created provisions for the sanctity of human beings and mandated that human dignity be upheld and improved. As has been noted numerous times, these provisions are not enforceable in a court of law due to their non-justiciable nature. Therefore, it is unsurprising that many Nigerian administrations have made lip service to supplying job prospects, including a conducive atmosphere for collective bargaining. These issues are crucial to workers' ability to function.

Regarding the right to education, the Constitution states in its Fundamental Objectives and Directive Principles of State Policy that the government should direct its policy toward ensuring equal and adequate educational opportunities at all levels [31, s. 18-1], promote science and technology [31, s. 18-2], and work to eradicate illiteracy. Government should, as and when practicable, provide free compulsory and universal education, free secondary education, free higher education, and other forms of free education. These clauses are reduced to words on paper by [31, s. 6-6-c] of the Constitution's limiting restrictions. Poor funding for federal and state tertiary institutions, ongoing and never-ending strikes by ac-

ademic and non-teaching staff at state and national universities, and the growth of for-profit tertiary institutions are all guaranteed to compromise standards. Unless this area is given serious consideration, the realisation of a free and democratic society, a just and egalitarian society, a united, strong, and self-reliant nation, a great and dynamic economy, and a land full of bright opportunities for all citizens will only remain a pipe dream [61, 67].

CONCLUSIONS

When water treatment systems are improperly designed, Installed, or operated, they tend to perform correctly, which can lead to groundwater and surface water contamination. These failures are often preceded by apparent signs, which are often overlooked and lead to system breakdown after a while, which can only be remedied by total system replacement. Wastewater management is usually not a priority in developing countries due to political interference, lack of appropriate institutions, and legislation enforcement. Like the Nigerian Government, they tend to focus more on other pressing needs like fighting insecurity or curbing unemployment and neglect the importance of having clean and sustainable water treatment facilities. Financial support from international organisations and developed countries is essential, but local conditions must be considered to ensure the success of projects. Inappropriate technology and failure to consider local conditions lead to project failure.

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Effect of Board Attributes on Financial Reporting Quality of Quoted Consumer Goods Companies in Nigeria

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Abstract. This study examines the impact of board composition on the degree of financial reporting quality of consumer goods companies listed on the Nigerian Stock Exchange between 2016 and 2021. Samples of thirteen businesses were selected after using two filters. The study employed an ex post facto methodology, and secondary data were extracted from the population's annual reports and accounts. Regression utilising the Ordinary Least Square Model was used to test the hypotheses. An increase in the number of specialists on the board will help consumer goods companies' financial reporting because it was discovered that board expertise is essential and positively correlated with financial reporting quality.

On the other hand, it was discovered that board diversity and independence were unimportant and irrelevant to the accuracy of financial reporting. The study concludes that board attributes, particularly board expertise, influence the quality of financial reporting. Accordingly, listed consumer goods firms should prioritise board expertise by increasing the number of non-executive members on the board who are knowledgeable about accounting, have professional certifications, and have a wealth of work experience to reduce management manipulations and halt fraud in the company.

Keywords: Board Attributes; Board Independent; Board Diversity; Board Expertise; Financial Reporting Quality; Discretionary Accruals.

INTRODUCTION

The aforementioned financial crises and scandals, including those involving Andersen, Enron, WorldCom, Parmalat, Xerox, Ocean Bank Nigeria Plc and the financial misconducts of some companies like Cadbury Nigeria Plc, Unilever Nigeria Plc, to mention but a few, have significantly impacted the accounting industry and the public's trust in financial accounts on a global scale. These episodes revealed dishonest business practices, false economic statistics, and governance flaws in the company, which eroded stakeholders' trust [1, 2, 3].

New laws and regulations were passed in reaction to these occurrences on both the international and national levels to address the flaws in financial reporting and improve its accuracy. One significant example is the Sarbanes-Oxley Act, which was approved in 2002 in the US. This law aimed to improve corporate governance and fi-

nancial disclosure in response to the Enron and WorldCom scandals. The Sarbanes-Oxley Act established several measures to enhance the reliability and accuracy of financial reporting. It increased the accountability of business executives and board members by introducing stiffer penalties for misrepresenting, altering, or destroying economic evidence during investigations. The Act also established the Public Company Accounting Oversight Board to oversee public companies' accounting practices and set auditing standards. The financial crises and scandals have also spurred international efforts to raise the bar for financial reporting requirements and advance transparency. International organisations collaborated to create accounting standards that will be acknowledged globally, like the International Financial Reporting Standards (IFRS) and the International Accounting Standards Board (IASB). By implementing these standards, financial

statements should be more reliable and comparable across national borders.

In actuality, several steps to improve the accuracy and dependability of financial reporting were incorporated in the Sarbanes-Oxley Act (SOX). The Enron and WorldCom financial catastrophes in the early 2000, which significantly lowered public confidence in the accounting profession and financial reporting, prompted the passage of the Act. One of the most significant aspects of the Sarbanes-Oxley Act is the increased accountability standards for company executives and board members. The Act sets harsher sanctions for those who falsify, modify, or destroy financial records during investigations. This heightened responsibility discourages fraud and encourages more accurate and trustworthy financial reporting. The Sarbanes-Oxley Act established the Public Company Accounting Oversight Board (PCAOB), another crucial element. The PCAOB is an impartial regulatory agency regulating the auditing industry and setting auditing standards for publicly traded firms. Its goal is to raise the bar of audits and encourage investor faith in the accuracy of financial statements.

In the case of French businesses, elements like board size, independence, ownership concentration, and institutional ownership affect the calibre of financial reporting. This study used the modified Jones model to evaluate the financial reporting standard for listed consumer product companies in Nigeria. It was built on the work [4, 5]. Despite the studies on this subject listed above, there isn't any contemporary research on businesses that produce consumer goods.

This study's primary goal is to assess how board attributes influence the quality of financial reporting for Nigerian consumer goods companies that are publicly traded. Additional study goals in detail include:

1. How board independence affects quoted Nigerian consumer goods companies' financial reporting quality.
2. Examine the impacts of board diversity on the financial reporting quality of consumer goods companies listed in Nigeria.
3. Determine how board expertise affects the Nigerian consumer goods companies listed in financial reporting quality.

Hypothesis Of The Study

The following null hypothesis(s) were created to guide the investigation and are consistent with its objectives:

H₁: In Nigeria, the integrity of consumer goods companies' financial reporting is not significantly impacted by board independence;

H₂: The gender diversity of the board of Nigeria's publicly traded consumer goods companies does not significantly affect the accuracy of the financial reporting.

H₃: The accuracy of financial reporting for publicly traded consumer products businesses in Nigeria is significantly unaffected by the board experience.

Literature Review

Financial reporting quality concept. Authors [6] state that clear and complete financial reporting strives to keep readers from being misled or deceived. According to this viewpoint, it is crucial to disclose financial data that is accurate, open, and devoid of manipulation or deliberate deception. The integrity and reliability of the information being reported are the primary concerns. On the other hand, the author [7] highlights the function of financial reports in providing details on a company's operations, particularly cash movement. According to this viewpoint, the effectiveness of financial statements offering equity owners or investors pertinent and helpful information determines the quality of financial reporting. The main points of attention are the usefulness and relevance of the presented information in assisting stakeholders in making informed decisions.

These differing definitions highlight the multifaceted nature of financial reporting quality and the various aspects that can be considered when evaluating it. Other factors contributing to financial reporting quality may include the clarity of presentation, compliance with accounting standards, disclosure of relevant information, and comparability of financial statements over time and across companies.

Board Attributes. The Nigerian Securities and Exchange Commission occasionally refers to the governing body as the board [8]. The study focuses on how the board's proficiency, independence, and diversity affect listed Nigerian consum-

er products businesses' financial reporting quality. The study examined these characteristics in light of prior research and demonstrated how they impacted the financial reporting standard.

Board Diversity and Financial Reporting Quality. Studies that link a varied board composition to more robust financial reporting are mentioned [9, 10, 11]. These studies strongly support the assumption that having a diverse board of directors increases the bar for financial reporting. It is important to remember that other research, such as that cited by [3, 12, 13], has indicated a tenuous or insignificant correlation between the level of financial reporting standards and board diversity. Because the research in this area seems to yield conflicting outcomes, more studies may be required to fully comprehend the relationship between board diversity and financial reporting quality.

Authors [11, 14] discovered that gender diversity on boards is considerably and positively connected with the standard of financial reporting when considering accounting conservatism as a criterion. These studies demonstrate the connection between increased gender diversity on boards and more precise financial reporting.

Board Independence and Financial Reporting Quality. Previous research has examined the relationship between financial reporting requirements and board independence. The author [15] advises that concerns about the board's independence and makeup, notably the executive-to-non-executive directors' ratio, should be voiced. The relationship between board independence and financial reporting quality is tenuous, according to studies by [3, 16]. Authors [10, 17] discovered a favourable association between the board's independence and the financial reporting norm.

The contradictory results of this research demonstrate how context and board membership, particularly diversity and independence, affect the level of financial reporting quality. While evaluating this relationship, it is essential to consider various variables, including the specific industry, nation, and governance laws. More research is required to completely comprehend the dynamics and underlying mechanisms between board characteristics and financial reporting standards.

Board Expertise and the Quality of Financial Reporting. This suggests that having knowledgeable

and experienced board members, particularly in finance, accounting, and auditing, may enhance the accuracy of financial reporting. However, it acknowledges that several theories in the literature about how board experience influences the standard of financial reporting exist.

Theoretical Framework

The effect of corporate governance structures on organisations' financial reporting quality is explained from various theoretical angles. The sources of these theories span a wide range of academic fields, including accounting, economics, finance, and law. As a result, previous investigations have incorporated many theoretical stances. The agency, resource dependence, management signalling, legitimacy, organisational, political costs, stakeholder, stewardship, and transaction cost economies theories are frequent among them.

Agency theory has formed the foundation for most earlier research on corporate governance procedures. As a result, agency theory is chosen as the leading underlying theory.

Theory of Agency. Barry Mitnick and Stephen Ross each put up a different Agency Theory concept in 1973. Since then, it has become widely recognised as one of the most compelling theories for understanding organisational behaviour. Agency theory is a conceptual framework that examines how interactions occur between principles, such as shareholders or owners, within a company and agents, such as managers or executives. The possibility for conflicts of interest that may arise when agents' and principals' interests are not entirely congruent is highlighted.

According to the theory, agents make decisions out of self-interest and may not always choose a course of action that maximises the organisation's value for the principals. This conflict of interests can result in agency issues like moral hazard and adverse selection, where agents may act opportunistically or neglect their duties, hurting the interests of the principals.

Delegating power from the principals to the agents to make choices and act on their behalf distinguishes a principal-agent relationship. The agents are given access to resources and the ability to make decisions, but they may not have the same objectives, risk tolerances, or knowledge as the principals. The potential for conflicting goals

and the knowledge asymmetry makes strategies to reduce agency issues necessary.

Various methods and strategies are frequently used to address agency difficulties. These consist of:

1. Monitoring and control measures: Principals may use performance reviews, audits, and reporting requirements as monitoring and control measures to monitor agents' conduct. These strategies are designed to lower agency costs brought on by information asymmetry and better match the agents' behaviour with the principals' interests.

2. Incentive systems: Principals can create incentive plans, like CEO compensation packages, that relate agents' pay to their accomplishments and the success of the company as a whole. These incentives can motivate agents to behave in the principals' best interests by aligning their interests with their goals.

3. Contractual agreements: Principals and agents can document the conditions and expectations of their relationship through contracts and agreements. These contracts frequently outline the agents' obligations, performance standards, and penalties for falling short of objectives. Clear contractual agreements can provide a foundation for matching incentives and minimising conflicts. However, given the complex nature of corporate governance, and in line with both prior studies, as well as recent calls for the adoption of a multiple-theoretical approach to corporate governance research, where applicable, agency theory is complemented with resource dependence theories. This gives the study a double-theoretical orientation.

Resource Dependency Theory. Resource Dependency Theory (RDT), a sociological and organisational theory, describes how organisations depend on outside resources to achieve their goals and stay afloat. It implies that businesses need various resources to run effectively, including information, cash, technology, skills, and social ties. The idea was developed in opposition to the famous viewpoint at the time, which focused on internal variables as the main influences on organisational behaviour.

RDT contends that stakeholders, social institutions, and other organisations comprise an organisation's external environment. Organisations work to acquire and maintain control of the re-

sources they need to endure and flourish in this environment.

The theory of agency, which is frequently used in corporate governance, sheds light on the difficulties and methods involved in coordinating the interests of principals and agents. Understanding how firms may create processes and frameworks to reduce agency issues, support efficient decision-making, and foster value creation is helpful.

METHODOLOGY

The ex-post facto design was employed in the investigation. This strategy is considered appropriate because the study uses data from historical events. The analysis uses historical data spanning the six years from 2016 to 2021. The study employs panel data analysis to examine the annual reports and financial statements of companies providing consumer goods in Nigeria. Still, its main focus is on the relationship between the financial reporting standard and board qualifications. Twenty firms are in the study's population. 13 businesses were chosen as a sample using the census method. Two filters, including the requirements that the criteria used to minimise this sample were that the company be listed for the length of the study and have access to the relevant study data. Statistical techniques, including Pearson Moment Correlation, Multiple Regression, and Descriptive Statistics, were employed as analytical tools. Twenty listed consumer goods companies in Nigeria comprise the study's population, and the researcher used thirteen of these firms as the sample size for this work. International Breweries PLC, Guinness Nigeria PLC, MC Nichols PLC, Nascon Allied Industries, Nestle Nigeria PLC, Northern Nigeria Flour Mills PLC, Cadbury Nigeria PLC, Vita Foam PLC, Pz Cussons Nigeria PLC, Unilever Nigerian PLC, Dangote Sugar PLC, Nigeria Enamelware PLC, and Champion Breweries PLC are the businesses that make up the chosen sample.

Information about Models. Discretionary accruals (DA), which served as a proxy for financial reporting quality (FRQ), whilst board independence (BI), board diversity (BDV), and board expertise (BE) represented board attributes. To test the given hypotheses, the subsequent multiple regression model is used:

$$FRQ_{it} = \beta_0 + \beta_1 BDV_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 FS_{it} + \varepsilon_i$$

where $FRQ(DA_{it})$ – Financial Reporting Quality (Discretionary Accruals); β_0 – Constant; BDV – Board Diversity; BI – Board Independent; BE – Board Expertise; FS – Firm Size; ε_i – Error Term; i-Time Series – Cross-sectional (Companies).

A prior prediction that is consistent with the body of existing literature $\beta_1, \beta_2, \beta_3 > 0$.

Variable Measurements

BI – the percentage of non-executive directors on the board as a whole; BDV – Female board members as a percentage of all board members; BE – the ratio of the overall number of board members to the total number of experts on the board (for example, those with a background in accounting and at least ten years of experience); FS – Natural Log of All Assets; FRQ – measuring the integrity of financial reporting using discretionary accruals as a proxy (i.e. $DA_{it} = TA_{it} - NDA_{it}$, where $TA_{it} = EBT_{it} - CFO_{it}$).

Models of Financial Reporting Quality Measurement

The Modified Jones model is stated as follows:

$$Nadi = PPE_{it} + A_{it-1} + (REV_{it} - AR_{it}),$$

NDA_{it} – a company's non-discretionary accruals i in year t ;

A_{it-1} – lagged (one year) total assets;

ΔREV_{it} – change in the company's revenues i in year t ;

ΔAR_{it} – Change in the Company's Net Receivables i in year t ;

PPE_{it} – property, a plant, and business equipment i in year t .

The discretionary accruals (DA_{it}) are then calculated as $DA_{it} = TA_{it} - NDA_{it}$. However, total accruals (TA_{it}) in this study will be calculated as income before taxes and extraordinary ordinary items ($EBXI_{it}$) less net cash flow from operating (CFO_{it}), as follows: $TA_{it} = EBTXI_{it} - CFO_{it}$.

RESULTS AND DISCUSSIONS

The information from the chosen companies' annual reports and financial statements is presented in this part. The following is a list of the descriptive statistics, correlations, and regressions;

Analytical Statistics. Table 3 presents the period's descriptive statistics for the study's variables from 2016 to 2021. It represents the variables of the sampled consumer products companies.

Table 3 – Descriptive Statistics

Variable	Obs.	Mean	Std Dev.	Min.	Max.
FRQ (DA)	65	-1.45 e+08	2.25 e+08	-1.16 e+09	6781
BDV	65	0.1906	0.1157	0	0.4
BI	65	0.7176	0.1294	0.5	0.9167
BE	65	0.2585	0.1132	0.0909	0.5455
FS	65	16.5382	0.4265	13.398	18.407

Table 3 shows that the number of observations is 65 and a descriptive statistic for each of the study's variables. Results from the listed consumer goods companies under investigation for discretionary accruals show A high and above-average standard deviation of 2.2508, indicating that the quality of financial statements of companies that manufacture consumer goods is very variable, with a mean value of -1.4508 and minimum and maximum values of -1.1609 and 6781, respectively. The average number of independent (non-executive) directors in the evaluation boardroom was 72%, according to the mean of board independence (BI), equivalent to 0.7176. The board independence of the consumer goods companies under study varied significantly, as shown by the standard deviation, which is tiny and below the mean at 0.1294. The last and most significant significance figures are 0.5 and 0.9167, respectively. By the board diversity index (BDV), which has a standard of 0.19 and a range of 0% to 40%, there are 19% on average female directors in boardrooms.

The lack of clustering around the mean is shown by the low standard deviation of 0.12, which also indicates the unequal presence of female directors in the boardroom. The lack of clustering around the mean is shown by the low standard deviation of 0.12, which also shows the unequal presence of female directors in the boardroom – indicating that 26% of the board's directors have academic and professional credentials. At least ten years of relevant employment experience in financial problems, the mean board expertise (BE) for the inquiry periods is consistently 0.2585 with a standard deviation of 0.1133. A recently proposed control variable is firm size (FS). The enterprises' average firm size (FS) under examination ranges from 13.380 to 18.4070,

with a standard deviation of 1.4265, and is above N17 billion.

Table 4 presents the correlation matrix of the variables of the study.

Table 4 – Correlation Matrix of the Variables

Variables	FRQ	BDV	BI	BE	FS
FRQ	1.0				
BDV	-0.1049	1.0			
BI	0.0618	0.0737	1.0		
BE	0.0947	-0.0494	0.0410	1.0	
FS	0.6308	0.3897	0.0144	0.1354	1.0

Table 4 above correlation matrix results illustrate the relationship between the independent variables and the dependence and independence variables. Any correlation coefficients less than 0.80 are not highly correlated and, therefore, considered safe for inclusion in the same regression model. The correlation matrix showed that multicollinearity-related issues did not impact the predictor variables because the correlation between the variables was extremely weak and was below the cutoff value of 0.80 [18].

Table 5 – Multicollinearity Test

Variable	VIF	1/VIF
BDV	1.20	0.83
BI	1.01	0.99
BE	1.03	0.97
FS	1.21	0.82
Mean VIF	1.11	

A high correlation does not automatically imply the demand for multicollinearity and vice versa. This is accurate despite potential multicollinearity between independence variables being identified using the correlation matrix. The values of explanatory variables crucial to the model, the Variance Inflation Factor (VIF), were determined to investigate the multicollinearity and remedy this issue. The author [18] states multicollinearity is present in the VIF above 10. The results above can be used to estimate the average VIF value, 1.11, is much less than benchmark 10, which is 10. This exhibits the model's lack of multicollinearity.

The model's adjusted R^2 is 0.43, which suggests that it accounts for almost 43% of the variation in discretionary accruals, according to the regres-

sion results in Table 6. The high probability value of the model, 0.00, showed that its statistical validity was more than 99.99%.

Table 6 – Regression Result

Variables	Coef.	Std. Err	t	P> t	95% Conf. Interval
BDV	3.6320	1.8008	-4.06	7.67	
BI	8.7716	0.536	-2.43	4.18	
BE	4.0019	2.0904	1.73	0.04	
FS	-1.1616		-7.02	-1.48	-8.26
CONS	1.5328	5.41	9.64	2.10	

Notes: Number obs 65; $F(4,60)=12.99$; $\text{Prob}>F=0.0000$; $R^2=0.4640$; $\text{Adj } R^2=0.4283$; $\text{Root MSE}=1.7e+08$

The regression model in Table 6 indicated that Board independence (BI) and financial reporting quality have a statistically small but positive relationship ($p/v=0.60$). This demonstrates a minimal probability that the financial reporting standard will fall by 8.77 log units for every unit increase in board independence.

The finding results in accepting the null hypothesis, which claims that board independence has no discernible impact on the accuracy of financial reporting at a 5% significance level.

The level of financial reporting quality and board diversity have a positive, statistically insignificant connection ($p/v=0.08$). This demonstrates that a 1% increase in board diversity won't boost the likelihood of accurate financial reporting by 3.63%. The study rejects the null hypothesis because, at the 5% significance level, board diversity has no observable effect on the accuracy of financial reporting. However, the statistically significant and favourable connection between financial reporting and Bo is that the financial reporting standard will decline by 8.77 log units for every unit rise in board independence.

The conclusion leads to the acceptance of the null hypothesis, which states that at a 5% significance level, board independence has no visible effect on the accuracy of financial reporting.

A positive, statistically insignificant relationship exists between the quality of financial reporting and board diversity ($p/v=0.08$). This illustrates that the likelihood of accurate financial reporting will not rise by 3.63% with a 1% increase in board diversity. The analysis rejects the null hy-

pothesis since board diversity has no discernible impact on the accuracy of financial reporting at the 5% significance level. However, the statistically significant and positive relationship between financial reporting and board expertise (BE), $P/V = 0.041$, points to the high calibre of the service. This suggests that the quality of financial reporting will most likely increase by 4.00 log odds for every unitard expertise (BE), $P/V=0.041$, implying that the service is of high quality. This means that for every unit increase in board experience, the quality of financial reporting will likely improve by 4.00 log odds.

In light of the findings, it was concluded that board competency has no appreciable impact on the accuracy of financial reporting at the 5% significance level. The control variable, firm size (FS), exhibits a strong positive link with financial reporting quality and a $p/v = 0.00$ combined with the explanatory variables. This illustrates how the control variable might help the Nigerian consumer goods companies under investigation to record their finances more accurately.

The study examined how publicly traded consumer goods businesses in Nigeria might have been influenced between 2016 and 2021 by board composition and financial reporting standards. The resource dependency theory, on which the study was founded, led to the specification of a model in which the independent variable is board qualities, with its measures, the independent variable is board independence, board diversity, and board knowledge, and the dependent variable is proxied by discretionary accruals. In this sense, the research revealed conflicting results and only partially agreed with the resource reliance theory put forth by [19]. The study shows that just one of the three variables substantially impacted the quality of financial reporting.

Board independence and financial reporting quality. The study examined how board composition and financial reporting rules may have affected publicly traded consumer products companies in Nigeria between 2016 and 2021. The resource dependency theory, on which the study was founded, led to the specification of a model in which the independent variable is board qualities, the independent variable is proxied by discretionary accruals, and its measures are independence, diversity, and skill of the board. In this sense, the research revealed conflicting results and only partially agreed with the resource reli-

ance theory put forth by [19]. The investigation revealed that only one of the three variables significantly influenced the calibre of financial disclosure.

Board diversity and financial reporting quality. It was shown that there was no statistically significant relationship between the board's diversity and the calibre of financial reporting. This indicates that adding more female board members won't raise the calibre of financial reporting for the businesses under consideration. Contrary to this finding, authors [9, 11] found that board diversity is positively and significantly associated with financial reporting quality. This result agrees with what [3] found.

Board expertise and the quality of financial reporting. Last but not least, the study also showed that board experience considerably and favourably influences the calibre of financial reporting. This is both realistic and true. However, directors' competence can enhance the calibre of their companies' financial reports, provided they have the necessary professional and academic credentials and a particular amount of work experience. Even so, this finding is at odds with results, which claimed that board expertise is significant but negatively affects the financial reporting standard. Instead, it is consistent with the positive connection indicated in the body of work by [3, 20].

CONCLUSIONS

The study concluded that board qualities, particularly board competency, affect the quality of financial reporting based on the analysis findings above. This resulted from a positive correlation between one of the three independent variables that was statistically significant at the 5% significance level and was used to proxy board attributes. Based on this research findings, board expertise was positive and meaningful to financial reporting quality. This was in line with [3, 21, 22], who support that board expertise significantly and positively impacts organisations' economic reporting levels. They assert that board skill, as measured by earnings management, considerably and unfavourably affects how well financial reporting is done [3].

Nevertheless, in light of the study's findings, the researcher recommends that the right individuals and an appropriate number of non-executive board members with accounting expertise

should be appointed to reduce management fraud and prevent it from happening in the com-

pany, which will reaffirm the trust of people who rely on financial statements.

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Effect of Physical Characteristics on Resident Satisfaction in Medium Density Area of Kaduna Metropolis, Nigeria

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Abstract. This study aimed to determine ways to reveal the significant association in Kaduna between a resident's physical features and housing happiness. The study used a quantitative approach. A questionnaire was created and mailed to 126 Household Heads, and 94 replies were received. Households were questioned using systematic random sampling to obtain socioeconomic characteristics and housing satisfaction data. The data was examined with descriptive statistics and a linear regression model using SPSS to investigate the effect of factors. According to the findings of the study, physical features have a significant impact on home happiness in the studied area. Toilet facilities, rendered and painted walls, tiles, an efficient kitchen, no finishing wall, electricity, and a generator as a substitute option for lighting a kitchen without modern facilities, concrete and a pit toilet are several variables that influence residents' satisfaction, according to the study. It was also revealed that restroom facilities, rendered and painted walls, and tiles had the highest mean score. The government was advised to provide the deficient communal facilities and repair the decaying ones as soon as possible. Proper regular management of social facilities needs to be implemented to promote residents' satisfaction in the area under investigation region.

Keywords: Physical Characteristics; Housing; Housing Satisfaction; Kaduna; Nigeria.

INTRODUCTION

Housing is regarded as a basic need as well as a requirement for the survival of humans, making it among the most essential basic infrastructure elements in the growth of any society [1]. Housing affects both individual's and the nation's lives; as a result, nature and culture highly emphasise its role in maintaining human comfort [2]. According to [3], housing is one of human's most basic needs, and the entitlement to sufficient housing is an obligation acknowledged globally and in over 100 national laws around the globe. Notwithstanding this privilege, numerous individuals are 'homeless,' 'inadequately housed,' or 'evicted' in cities and rural places worldwide. Housing is integrally linked to one's happiness in life. It is affected by various elements such as

money, employment, schooling, balance between work and life, fulfilment in life, and one's impression of society [4, 5]. Housing has been dubbed "the predictor of quality of life" given that it is the only means of one's fulfilment [6].

Residents' impressions of their community and living conditions affect their housing-related happiness. This suggests a low level of dissatisfaction and a high level of concurrence between anticipated and actual needs, as well as being satisfied with tenants' daily housing standards. On the other hand, inconsistency between their present and ideal home situations may result in discontent [7, 8]. Families with low incomes, on the contrary, are more inclined than those with middle incomes to be content with more deficient housing [9, 10, 11]. Low income is a big challenge

for have-not households because it hinders them from obtaining non-deficit accommodation [12].

Physical characteristics may impact resident pleasure [1, 13]. Biological factors may affect homeowner happiness, whether beneficial or detrimental; for example, when the state of social amenities or infrastructure amenities is considered good, satisfaction is significantly higher, and vice versa. Most people in developing countries remain without bare essentials such as shelter, health care, a robust road network, portable water, and consistent energy, to name a few. Many people cannot meet their fundamental necessities due to leaders' unqualified management of public funds, inadequate workforce to effectively use available resources, political upheaval, and local institutions' lack of planning [14, 15]. As a result, an area of need has been identified, and this study aims to provide solutions to concerns about the impact of physical attributes on resident satisfaction in Kaduna Metropolis.

This *study aims* to investigate the impact of physical qualities on satisfaction with residents in a high-density area of the Kaduna metropolis to uncover the effect of physical characteristics on residents' housing satisfaction.

1. To identify the physical features of the populace at Kaduna metropolis
2. To investigate the level of satisfaction amongst residents in the research region.
3. To determine the impact of physical attributes on residents' contentment in the research area.

METHODOLOGY

In this inquiry, quantitative research approaches were used. Respondents were provided with a survey to complete and return. One hundred twenty-six questionnaires were given out, with ninety-four valid copies completed and born out of 126. Other social sciences researchers in Nigeria have used sample size selection to determine sample size (for example, [16, 1, 9, 16]). Each of these residential communities had a total of 126 residences sampled. Unguwar Sarki and Unguwar Kanawa, two medium-density suburban districts, were chosen. The method employed was systematic random sampling, which is the most fundamental method and assures that every subject in the sample has an equal likelihood of being selected. After comprehensive data collection, descriptive, mean ranking, and multiple regres-

sion analyses were performed on the data collected in the field by using SPSS Version 22.

RESULTS AND DISCUSSIONS

Table 1 shows the socioeconomic characteristics of the respondents. Men made up the vast majority of responders in the study area. Similarly, the study revealed that people under 30 represented around half the population.

Table 1 – Demographic Data of the Respondents

Parameters	N	%
Gender		
Male	75.3	80.2
Female	18.7	19.8
Age		
Less than 30 years	50	53.19
between 31-40 years	20	21.28
between 41-50 years	18	19.15
above 50 years	6	6.38
Marital status		
Single	31	32.98
Married	63	67.02
Education		
Primary school	14	14.90
O level	29	30.85
OND/NCE	32	34.04
HND	12	12.77
BSC	5	5.32
MSC	1	1.06
PHD	1	1.06
Occupation		
Farming	17	18.09
Civil Servant	29	30.85
Business	9	9.57
Retired	14	14.89
Artisan	25	26.60
Religion		
Islam	82	87.23
Christianity	12	12.77
Income		
Less than #30,000	27	28.72
#31,000- #60,000	39	41.49
#61,0000-#91,000	18	19.15
#91,000 and above	10	10.64
Household Size		
6-10	51	54.26
11-15	23	24.47
16-20	14	14.89
21 persons and above	6	6.38
Tribe		
Yoruba	78	82.98
Hausa	10	10.64
Igbo	6	6.38

Furthermore, most people who replied to the survey (63 %) were married. According to the households' employment, around 30.85 % of the people who took part worked as civil servants. Retirees, students, craftspeople, and artisans account for 69.15 % of total respondents in the overall research region. This implies that the vast majority of respondents in the research area have a source of income. In addition, according to a household income analysis, most participants earn between N31,000 and N60,000. The bulk of the people in the area practice Islam.

Table 2 – Physical characteristics in Medium Density Area of Kaduna Metropolis (N=94)

Physical Characteristics	Mean	S Std. Deviation	Rank	Remark
WC Toilet	4.0851	1.02296	1	Good
Tiles	4.0213	1.00513	2	Good
Te Terrrazzo	3.8723	1.09970	3	Good
Rendered and Painted	3.8085	1.25532	4	Good
Well Equipped Kitchen	3.7553	1.19754	5	Good
Aluminum	3.7234	1.13027	6	Good
Well	3.7234	1.03076	7	Good
Cemented	3.7021	1.14375	8	Good
Generator	3.6915	1.98403	9	Good
Sand Crete	3.6702	1.19487	10	Good
Bore Hole	3.6383	1.04574	11	Good
Pipe Borne	3.4894	1.09490	12	Good
Pit Toilet	3.4787	1.04448	13	Good
Kerosene Lamp	3.4043	1.26422	14	Fair
Rendered without Paint	3.4043	1.11026	15	Fair
Corrugated Iron Sheet	3.3404	1.10281	16	Fair
Asbestos	3.2021	1.23201	17	Fair
Burnt Bricks	3.1915	.97580	18	Fair
Ele Electricity from Public main Source	3.0745	1.25501	19	Fair
Toi Toilet and Bathroom Facilities	3.0745	1.54669	20	Fair
W Waste Disposal Facilities	3.0213	1.31965	21	Fair
K Kitchen without modern Facilities	2.9681	1.22213	22	Fair
Clay Clay/Mud Block	2.8723	1.17532	23	Fair
No fi n No finishing at all	2.6809	1.27180	24	Fair

Table 2 represents the housing conditions in medium-density neighbourhoods of Kaduna. The homes in the study area agreed that the WC toilet was in good functioning order ($M=4.08$ $SD=1.02$) and ranked first. Tiles under their floor finishes were also in good condition ($M=4.02$ $SD=1.00$), and terrazzo was ranked third ($M=3.87$ $SD=1.00$), rendered and painted walls ranked fourth ($M=3.80$ $SD=1.25$), and a well-equipped kitchen ranked fifth ($M=3.75$ $SD=1.19$). Toilet and bathroom facilities were ranked 20th ($M=3.07$ $SD=1.54$), and waste disposal facilities were ranked 21st ($M=3.02$ $SD=1.31$). A kitchen without contemporary facilities was ranked 22nd ($M=2.96$ $SD=1.22$). Clay/mud block was ranked 23rd ($M=2.87$ $SD=1.17$). Buildings with no finishing ranked 24th ($M=2.68$ $SD=1.27$), suggesting that most physical characteristics of housing conditions in the Kaduna metropolis's high-density districts were in excellent shape, with only a few in poor condition.

Table 3 – Ranking Residents Satisfaction (N=94)

Physical Characteristics	Mean	Std. Deviation	Ranking
Toilet and Bathroom Facilities	3.6809	1.88248	1
Rendered and Painted	3.5745	1.20473	2
Tiles	3.5426	1.48588	3
Well Equipped Kitchen	3.5000	1.41231	4
No finishing at all	3.3617	1.12500	5
Electricity from the public main	3.3404	1.21419	6
Generator	3.2872	1.20592	7
kitchen without modern Facilities	3.1596	1.24696	8
Sandcrete	3.1489	1.48075	9
Pit Toilet	3.0957	1.38400	10
Waste Disposal Facilities	3.0213	1.42918	11
Rendered without Paint	2.9787	1.42164	13
Burnt Bricks	2.9574	1.45849	14
Borehole	2.8723	1.45346	15
Aluminium	2.6809	1.71152	16
Cemented	2.6596	1.50664	17
Well	2.6170	1.52475	18
Terrazo	2.4681	1.47890	19
Clay/Mud Block	2.2979	1.48708	20
Corrugated Iron Sheet	2.2234	1.43050	21
kerosene Lamp	1.9894	1.30750	22
Security	1.8191	1.29484	23
Pipe Borne	1.6915	1.20952	24

Table 3 shows the contentment of households in Kaduna Metropolis's low-density area. According to them, the family's degree of contentment is modest. The Toilet and Bathroom Facilities came first with (M=3.68, S=1.88) points. Rendered and Painted came in second with (S=3.57, S=1.20). The Tiles came in third place with (M=3.54, S=1.48). Their rating for Well Equipped Kitchen was also reasonable (M=3.50, S=1.41), placing it fourth. They were dissatisfied with their Kerosene, which came in 22nd (M=1.98, S=1.30). Asbestos was classified 23rd with (S=1.81, 1.29) and Pipe-borne was ranked 24th with (M=1.69, S=1.20). As a consequence, the table demonstrates that the vast majority of household members are fairly satisfied with their physical attributes. They are, however, displeased with some of their physical features.

Table 4 – Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	.723a	.623	.581	.47384

In the model summary table above, the R² value reflects how much variation in the dependent variable (resident happiness in the study region) has been explained by the model (which includes physical features variables). The model explains 62.3 % of the variation in resident contentment in the study area.

Table 5 – ANOVA

Df	Mean Square	F	Sig.
10	1.744	12.476	.000b
114	.140		
124			

The table above shows the statistical significance of the analysis. The table shows that the highly significant value is ".000," less than 05 (p.0005). It demonstrates that the regression model is correct and appropriate for the analysis.

According to the correlation table earlier, physical factors significantly impact resident happiness.

Table 6 – Coefficient Table

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	.943	.228		4.130	.000
Ranking Toilet and Bathroom Facilities in the area	.116	.050	.170	2.295	.024
Ranking Rendered and Painted walls in the area	.159	.040	.298	3.949	.000
Ranking Tile in the area	.073	.029	.179	2.483	.014
Ranking Well Equipped Kitchen facilities in the area	.115	.029	.303	4.024	.000
Rankin their no finishing wall	.059	.032	.139	1.860	.065
Ranking electricity from the public main	.056	.025	.149	2.188	.031
Ranking Generator as a source of Lightning in the area	.012	.036	.022	.327	.744
Ranking their kitchen without modern facilities in the area	.020	.035	.043	.585	.560
Ranking sandcrete in the area	-.056	.029	-.134	1.943	.055
Ranking /Pit Toilet condition in the area	.042	.029	.100	1.443	.152

Toilet facilities, rendered and painted walls, tiles, a well-equipped kitchen, no finishing wall, electricity, and the generator as an alternative means of lighting were the physical characteristics that significantly influenced resident satisfaction, with Beta values of .298, .303, .179, .170, .149, .134 and .139, respectively, and p-values of .000, .014, .024, .031, .055 and .065. While kitchens without contemporary facilities, concrete, and pit

toilets have Beta values of .100, .043, .022, with p values of .152, .560, and .744, they were proven to have less influence. As a result, it is reasonable to infer that the physical qualities that adversely affected residents' satisfaction with sanitary services were rendered with painted walls, a well-equipped kitchen, and access to power.

CONCLUSIONS

As was noted in the preceding study and discussion (SPSS), physical attributes and resident satisfaction were examined using the Statistical Package for Social Science. According to the survey, toilet facilities with plastered and painted walls and tiles, a well-equipped kitchen, no finishing wall, power and generator, a kitchen lack-

ing modern amenities, concrete, and a pit latrine have all affected house happiness. It also illustrates that physical features significantly impact resident satisfaction in the researched location.

Because a neighbourhood's physical qualities impact resident contentment, the government must provide more and better social amenities to improve resident satisfaction. Because most households in the community think that their security is terrible, the government or policymakers must develop better measures to help the area become more secure. Proper routine management of social amenities should be implemented to ensure acceptable neighbourhood conditions and resident satisfaction in the research area.

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Village Information System (SIADA) Enhancing the Performance of Village Office Staff

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Abstract. Utilising systems in the administrative process can enhance employee performance and expedite tasks related to archiving and document retrieval. This research aims to develop a Microsoft Access-based administrative information system that has undergone validation by subject matter experts, system experts, and user testing. Furthermore, it assesses the effectiveness of utilising the Microsoft Access-based Administrative Information System. This research employs the Research and Development (R&D) method with the AD-DIE model. The data collected in this study encompass both quantitative and qualitative data, with data analysis techniques involving descriptive statistics. The study results in the creating of the Village Information System (Sistem Informasi Desa – SIADA), which can archive original letter files and automatically categorise outgoing letter data by type. This product has been found highly suitable for use and tested on Village Office staff, improving employee performance at the Jogomerto Village Office, Nganjuk Regency. Future researchers are encouraged to enhance Microsoft Access-based administrative information systems by introducing additional features, such as letter scanning, without needing a dedicated camera or external assistance.

Keywords: Information System; Jogomerto Village Office; Microsoft Access, Performance; Village Administration.

INTRODUCTION

Technology development is no longer a new concept in today's society. Administration encompasses planning activities to organise office work to achieve predefined goals [1, 2, 3]. An information system comprises interconnected components for data collection and information dissemination to support decision-making processes [4, 5]. A well-structured civil registration information system that leverages information and communication technology allows for the streamlined processing of civil registration information at administrative and implementing agency levels [6, 7]. Implementing strategies in the administrative process undoubtedly enhances staff performance in the village office and expedites tasks related to archiving and document retrieval.

An information system consists of interconnected components designed to collect data and distribute information for decision-making purposes,

enabling data's swift, accurate, and precise monitoring and security [3, 8]. A well-designed population administration information system is essential for managing population information at the administrative and executive levels [9]. Creating a design using Microsoft Access and a database greatly facilitates the retrieval of required information or documents [10, 11]. Microsoft Access offers several advantages, including its database design capabilities and access-based filing system, which enable the development of precise and sophisticated applications, along with various features such as form creation, report generation, and data management, including data transmission and filtering [12, 13]. Databases present data in a structured manner, simplifying programming but necessitating archiving strategies to pre-empt data corruption [14, 15].

Given the current state of affairs, where administrative activities in Jogomerto Village still rely on a traditional system, it becomes evident that a transformative approach is imperative to en-

hance efficiency and streamline operations. Letter writing at the Jogomerto Village office is carried out manually, requiring typing each letter individually. This approach significantly hampers the performance of the village office staff due to the time-consuming nature of letter creation. Furthermore, letter filing is done manually by recording each piece of data in a physical book. This situation aligns with research findings, indicating that developing computer-based systems to replace traditional book-based practices in correspondence activities is ongoing [16].

Additionally, when staff needs to retrieve a specific letter, they must manually search for it, which can be time-consuming. Such shortcomings regarding the effectiveness and efficiency of manual work processes hinder employee performance [17]. Adopting an electronic Village Administration System has proven highly suitable for village administration, offering numerous advantages to the overall system [18]. What sets this research apart from previous studies is that this application system focuses on creating outgoing letters, addressing the specific needs of letter-making services at the Jogomerto Village Office in Tanjunganom District, Nganjuk Regency. It also offers a more straightforward yet appealing user interface, catering to the village office staff, the primary target users.

The developed system utilises Microsoft Access as an application that can be accessed offline via a PC or laptop without an internet connection. Letter creation becomes more efficient with the availability of various letter templates, enabling users to select templates as per their requirements. Village information system (Sistem Informasi Desa – SIADA) distinguishes itself by allowing the storage of original letter files in the archive menu and automatically categorising outgoing letter data based on their types. This feature streamlines the archiving process, aligning with research emphasising that technical support is crucial for electronic (digital) archives, contributing to the success of institutions or organisations in the archiving process, file retrieval, and ensuring data security [19, 20]. The development of this administrative information system is poised to enhance employee performance in letter-making processes within the village government, particularly at Jogomerto Village. Thus, the research aims to deliver a product as a Microsoft Access-based administrative information system, validated by material and system experts and tested in small groups. Additionally,

it seeks to assess the effectiveness of implementing the Microsoft Access-based Administrative Information System at the Jogomerto Village Office, Nganjuk Regency.

Advancements in technology have become integral to modern society. Administration involves planning and organising office work to achieve specific goals. Information systems, composed of interconnected components, play a vital role in collecting and disseminating data to facilitate decision-making.

Efficient civil registration information systems, utilising technology, streamline administrative tasks at various levels [21]. Implementing digital procedures in administration enhances staff performance and expedites tasks, such as archiving and document retrieval. Microsoft Access, coupled with databases, simplifies information retrieval and document management. Its features offer advantages, including form creation, report generation, and data management. However, databases require effective archiving strategies to prevent data corruption.

Modernisation is needed in the context of Jogomerto Village, where traditional manual methods persist. Manual letter writing and archiving processes hinder staff efficiency. Adopting an electronic Village Administration System focused on outgoing letters can significantly improve operational efficiency. This system, accessible offline via PCs or laptops, streamlines letter creation with templates and enhances archiving capabilities. Such technical support ensures the success of electronic archives, optimising file retrieval and data security.

METHODS

This research is a Research and Development (R&D) study utilising the ADDIE model.

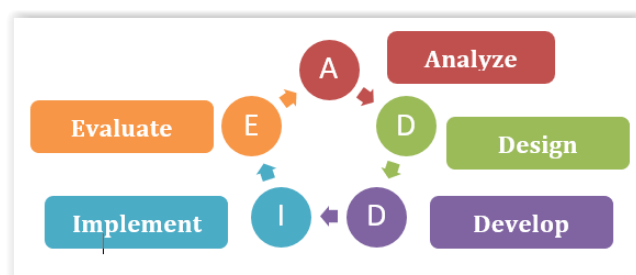


Figure 1 – Research Model

The first stage of this research was to analyse and identify problems and needs at the Jogomerto Village Office. At this stage, it was evident that administrative service staff were still using a semi-manual process for letter creation and archiving. Letter writing at the Jogomerto Village office was still performed conventionally, involving manual typing whenever a letter was needed. Additionally, filing letters was done manually by recording each piece of data in a physical book. This method carried risks such as damage from tearing, moisture, ageing, and other factors, potentially leading to the loss of recorded data. Based on the analysis, there was a clear need for a correspondence system integrated with an archive system to enhance the effectiveness and efficiency of administrative activities at the Jogomerto Village Office. This need was reinforced by facilities, including PCs and a young village head's staff.

The second stage was the design phase, in which researchers developed the system products to be created. The system was designed using the Microsoft Access application, featuring an appealing user interface and specific characteristics. The third stage was development, during which researchers created an administrative system based on Microsoft Access, following the previously designed blueprint. In this stage, product feasibility testing was performed by material experts and system experts based on predefined criteria. The subsequent step was the implementation or application of the developed system product. In this phase, the developed administrative system was implemented by nine staff members at the Jogomerto Village Office to assess its effectiveness. The final stage involved evaluation, where the system products underwent assessments, critiques, and suggestions from material experts and media experts. Additionally, the developed system product completed user trials involving the staff at the Jogomerto Village Office.

The participants in this study included two material experts, system experts, and nine users, consisting of the staff at the Jogomerto Village Office in Nganjuk Regency. Data generated in this study encompassed both quantitative and qualitative data. Quantitative data comprised questionnaire scores filled out by validators during system feasibility evaluations and user responses. Qualitative data were derived from critiques and suggestions provided by validators and users. The

data from the validation and user trials were processed using descriptive statistics.

To assess the effectiveness of archive retrieval when utilising the Village administration information system (Sistem Informasi Desa – SIADA), researchers conducted data analysis. This analysis involved testing the effectiveness of archive retrieval by calculating the Accuracy Score to establish the effectiveness criteria, following [22] methodology. The data assessed by researchers consisted of two distinct data groups, each comprising a sample of 100 data points - 50 incoming and 50 outgoing letter data. The level of accuracy in the archive retrieval process was determined by applying the Accuracy Score formula. Moreover, it was essential to ascertain the time required for the archive retrieval process to gauge the efficiency of archive retrieval. To determine the effectiveness of archive retrieval, the Accuracy Rate was calculated using the following formula [22]:

$$AK = \frac{\text{Number of archives not found}}{\text{Number of archives found}} \times 100 \quad (1)$$

The tolerance limit for the accuracy of archive retrieval is considered good, falling within the range of 0.5% to 3% [22]. However, if the calculated accuracy value falls below or equals 0.5%, it indicates a need for improvement in the archival method. Conversely, the archival process is deemed reasonably practical if the accuracy value exceeds 0.5% but remains within the 0.5% to 3% range. Records retrieval from the archive takes no more than 1 minute. On the other hand, if the accuracy value obtained is equal to or greater than 3%, it becomes necessary to revise and enhance the method employed.

RESULTS AND DISCUSSION

This research has resulted in the creation Microsoft Access-based administrative information system products. This system is accessible offline using a PC or laptop featuring an appealing menu. The menus within this administrative information system are illustrated in Figure 2.



Figure 2 – Menu in the Application System

The SIADA interface is attractively designed, featuring a vibrant colour scheme and supplemented by supporting images to enhance user-friendliness. The system's interface is illustrated in Figure 3 below.

The results of descriptive statistical analysis of the data from the validation results of material experts and system experts are presented in Table 1.

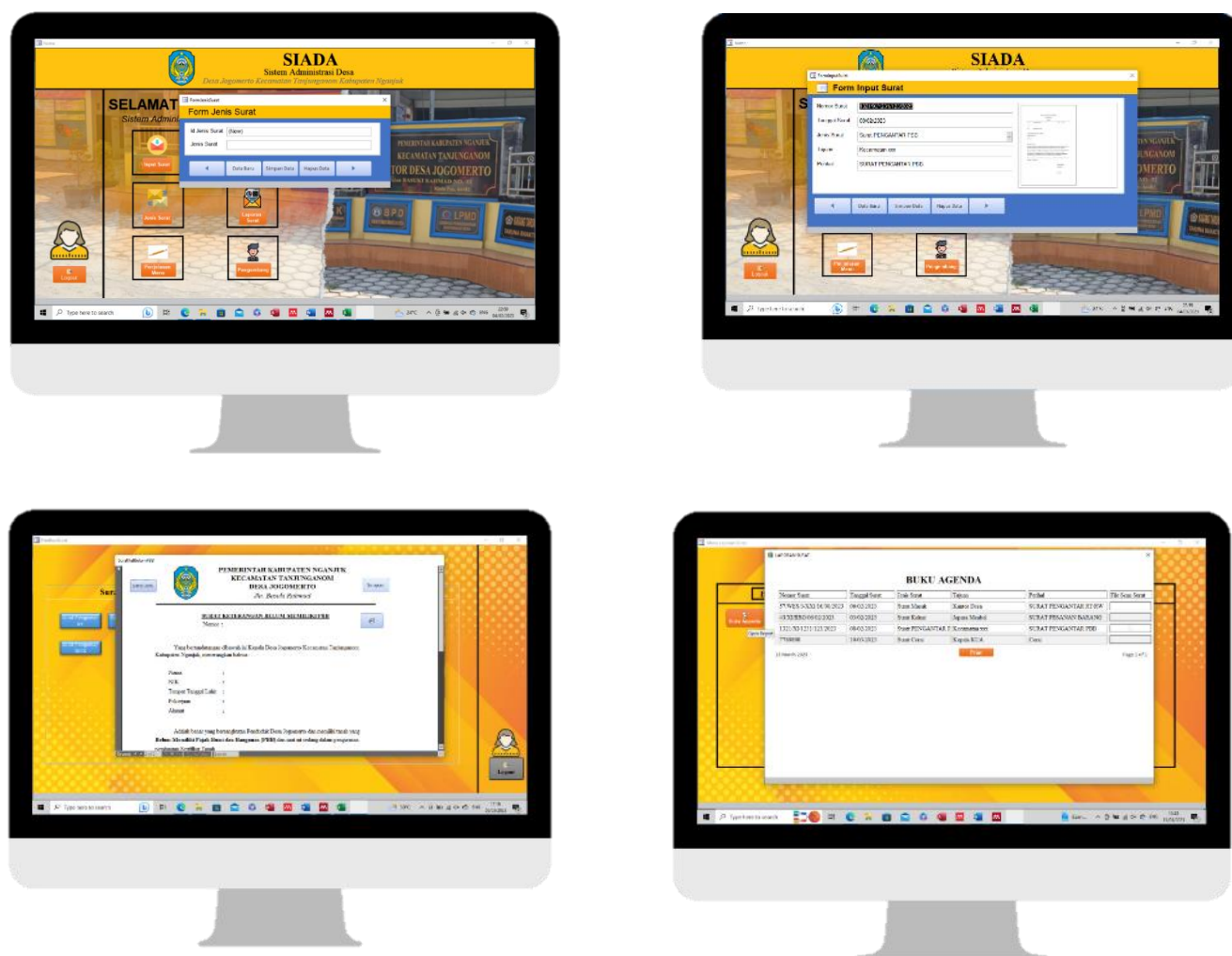


Figure 3 – System Overview

Table 1 – Product Validation Results

Validator	Aspect	Indicator	%	Criteria
Material Expert 1	Usage	Appropriateness of application name	92	Very Valid
		Appropriateness of the application to the administration system		
		Name of mail storage file		
		Clarity of instructions and commands		
	Content	Suitability of menu content to the needs	92	Very Valid
		Language used		
		Incoming mail agenda book format		
		Outgoing letter agenda book format		
		Outgoing letter creation		
		Completeness of letter type		

Validator	Aspect	Indicator	%	Criteria
Material Expert 2	Usage	Appropriateness of application name	94	Very Valid
		Appropriateness of the application to the administration system		
		Name of mail storage file		
		Clarity of instructions and commands		
	Content	Suitability of menu content to the needs	94	Very Valid
		Language used		
		Incoming mail agenda book format		
		Outgoing letter agenda book format		
		Outgoing letter creation		
		Completeness of letter type		
System Expert	Usage	Attractiveness of the initial appearance, content, and system icon	94	Very Valid
		Completeness of the menu		
		Menu arrangement		
		Compatibility between menus		
	Content	Font style combination	94	Very Valid
		Colour combination		
	Ease of use	Ease of menu access	94	Very Valid
		Ease of data entry		
		Ease of writing outgoing letters		
		Ease of printing letters		
Average			93,3	Very Valid

Notes: [23]

Based on Table 1, it is evident that the results of the validation conducted by material experts and system experts collectively yield an overall average of 93.3%. Consequently, it can be concluded that experts have deemed the SIADA at the Jogomerto Village Office, Nganjuk Regency, highly valid. This indicates that the SIADA product is

exceptionally suitable for use, prompting the need for testing with Jogomerto Village staff, Nganjuk Regency.

Furthermore, the data derived from the descriptive statistical analysis of user response data are presented in Table 2 as follows:

Table 2 – Product Trial Results

User	Aspect	Indicator	%	Criteria
User	Attraction	Attraction to the system	85	Very Feasible
	Ease	Easy to learn the system menu		
		Understand the language in the system.		
		Data entry		
		Outgoing letter creation		
		Printing letter		
	Suitability	Suitability of the system to the needs	85	Very Feasible
		Compatibility with the administration system		
		Useful in correspondence activities		
		Effectiveness of the system		

Notes: [23]

Based on Table 2, it is evident that the results of the product trials exhibit an overall average of 85%. Consequently, it can be concluded that the SIADA at the Jogomerto Village Office, Nganjuk Regency, is deemed highly feasible. This means

that SIADA can be effectively used and utilised for the administrative activities carried out by the staff at the Jogomerto Village Office, Nganjuk Regency.

While testing the effectiveness of archive retrieval, the researcher requested that the Jogomerto Village Office Nganjuk Regency staff conduct a trial by utilising the search feature within SIADA. They tested the available data consisting of 30 entries for incoming and outgoing letters. The team performed the archive search based on the letter type previously inputted, aiming to complete the archive retrieval process within 3 minutes. Following the trial, it was observed that 29 out of 30 archive data entries could be located within 3 minutes, with an average search time of 6 seconds per archive entry. The one instance where data was not found was attributed to incorrect input by the SIADA staff. Subsequently, the Accuracy Score can be determined as follows:

$$AK = \frac{1}{29} \times 100\% = 0,034 \times 100\% = 3\%$$

Based on the obtained accuracy rate calculation result, which is 3, implementing the Microsoft Access-based Village Administration System (SIADA) is deemed adequate for archive retrieval in administrative activities at the Jogomerto Village Office, Nganjuk Regency [22, 24].

Table 3 – Comparison Results

Indicator	Before	After (SIADA)
Letter Creation	>5 minutes	<2 minutes
Mail Archive	>2 minutes	<1 minute
Letter Discovery	>1 minute	6 seconds

Based on the conducted trials, before using SIADA, the staff required more than 5 minutes to compose a single letter. This was due to the manual process of typing the necessary data individually. However, following the adoption of SIADA, the staff can complete the same task in less than 1 minute. This efficiency is attributed to the system's integration with a citizen identity database. When a letter is needed, the staff can open the relevant letter template and search the citizen database, and the system will automatically generate the required letter [25, 26].

The system developed by the researchers is the Village Administration Information System (SIADA), characterised by its ability to save original letter files into the archive menu and automatically classify outgoing letter data based on its type. SIADA is aesthetically designed with a

varied colour palette, complemented by supporting images, and features user-friendly menu options to enhance usability [27, 28]. The researchers have designed this system to be accessible offline via a PC or laptop, providing staff or users with ease of use without an internet connection [29, 30]. Beyond letter creation, this system includes a letter archiving menu with a built-in letter file storage feature. It is a comprehensive tool for village correspondence activities, letter handling, searching, and report generation, improving efficiency and effectiveness [10, 16]. Information system design can also yield attractive layouts to facilitate data entry [11], ensuring faster, more precise, and more accurate operations [8].

This system has been validated to determine the feasibility of the SIADA when used at the Jogomerto Village Office, Nganjuk Regency. Researchers conduct validation to know the level of success and validity of the tools that have been developed [31, 32]. Two validators completed material expert validation. The first validator is a lecturer who is an expert in administration and archives. The second validator was the Jogomerto Village Secretary, who is an expert in the field of administration and libraries in the village. Based on the content, the system is declared very feasible because it has met the criteria in the form of usability and content that suits the needs. Then, system expert validation was carried out by lecturers majoring in Educational Technology (TEP) who are experts in system development. System expert validation stated that SIADA is very feasible because it has met the assessment criteria of usability, content, and convenience. Based on the proof of material experts, system experts, and product trials by users, it shows that SIADA is very feasible to use to improve administrative staff performance at the Jogomerto Village Office, Nganjuk Regency [24, 33].

The SIADA is attractively designed with colours that are not monotonous and accompanied by supporting images that can reduce the possibility of boredom in staff so that it can motivate the team at the Jogomerto Village Office to work and improve performance in managing village administration [34, 35, 36, 37]. Based on the validation and calculations that have been carried out, the results show that the SIADA is declared very valid and effective for use at the Jogomerto Village Office, Nganjuk Regency [38, 39]. Based on the trial, before using SIADA, staff took more than 5 minutes to create a letter. Meanwhile, after us-

ing SIADA, the team can make notes in less than 1 minute because supporting infrastructure facilities can help improve employee performance [25, 40].

CONCLUSIONS

This research and development project has resulted in the creation of the SIADA designed to enhance the effectiveness of the staff at the Jogomerto Village Office in Nganjuk Regency. The system has been officially validated and deemed suitable for use in the administrative service process. Subject matter experts and system experts conducted this validation; nine users tested the system. Based on the analysis results, it can be

concluded that the SIADA can significantly improve the efficiency of the Jogomerto Village Office staff in Nganjuk Regency, as it allows for faster letter writing compared to conventional administrative systems.

The SIADA focuses explicitly on e-archiving and creating outgoing letters at the Jogomerto Village Office in the Nganjuk Regency. We hope future researchers can further develop the SIADA by introducing additional features, such as letter scanning, without needing a separate camera or external assistance. If other organisations or parties wish to implement the SIADA system, modifications to the layout and design may be necessary.

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Value Relevance of Accounting Information: Empirical Evidence from Listed Conglomerate Firms in Nigeria

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Abstract. In recent years, internal and external investors have lost confidence in Nigeria due to insecurity, energy (power), economic instability, and governance. Although the government is trying to overcome the menace, there are still unresolved issues in the aspect of the challenges above, which affect value relevance and accounting information in ensuring the perpetual existence of companies in Nigeria. As such, the study examined the value relevance of accounting information of listed conglomerate companies in Nigeria. The study population comprises six companies: UAC Nigeria Plc, Chellarams Plc, SCOA Nigeria Plc, John Holt Plc, Transnational Corporation of Nigeria Plc, and Custodian Investment Plc. The data was extracted from their annual report and accounts. Descriptive statistics correlation regression was conducted in the study. The result shows that return on share price has a significant negative relationship with dividend per share. The study recommends that standards comply in reporting and disclosing all accounting information in the published financial statement to maintain value relevance and attract more investors.

Keywords: dividend per share; earnings per share; returns on share price.

INTRODUCTION

Accounting information is very vital in determining the future of enterprises. It serves as a key for financial decisions investors rely heavily on, provided in published financial statements for their interest [1]. Their framework in International Accounting Standard (IASB) states that accounting information is relevant when users can determine past, present and forecast future. However, for it to be pertinent and reliable by investors and the general public, Generally Accepted Accounting Principles provided four main qualities: understandability, relevance, reliability and comparability. An accurate and fair view of a company's operation and financial strength is one of the primary purposes for preparing financial statements. Value relevance is the capability of accounting information to interpret and summarise information that affects stock values [1].

In essence, the value relevance of accounting information has been an area of concern to developed and developing countries due to its nature. Even though researchers, investors, and policy-makers perceived it as an essential element for measuring the financial performance of companies and evaluating their financial strength.

Authors [2] opined that any financial statement that fails to produce accounting information showing an accurate and fair view of the company's operation and financial status lacks value relevance and should be rejected so as not to mislead investors and the general public. Therefore, a financial statement is prepared to show the arrangement of recorded details, accounting principles, concepts and conventions, personal judgments and estimates of a company.

Studies on the value relevance of accounting information of conglomerate firms became neces-

sary to look at the dynamic nature of companies and investors coming from in and outside the country to invest. Although there are many challenges bedevilling investment in Nigeria, such as power failure and poor governance, that would not discourage them if companies would arrange their accounting information and produce a statement that would conform with the international reporting standard.

The features of an organisation, such as age, size, type, and status, determine the value and relevance of that organisation's financial information. As such, the effect of these attributes on accounting information's value relevance can be determined by examining financial reports and accounts of companies in Nigeria [3].

As opined by [4], accounting information provides a way out for the decision-making of investors and the general public. However, stakeholders are interested in relevant, reliable and timely accounting information that will be used for any decision. However, accounting information should be of pertinent value and a subject of interest to researchers and regulatory bodies to enhance the market-based decision-making of investors and the public.

The conglomerate is an association of two or firms engaged in different activities under one corporate entity consisting of parent and subsidiaries. As a large company with other firms and activities, it can be categorised as a Multinational Corporation because of its features. Conglomerate companies play a vital role in the economic development of Nigeria. Apart from producing and marketing automobiles, leasing equipment and installation, merchandising, provision of heavy machines and construction equipment among customers, more importantly, they provide job opportunities to many Nigerians, as well as payment of tax to the central government. Despite their contribution, conglomerate firms faced many challenges, from power failure and cost, incessant inflation rate to multiple tax collection by government agencies.

Several studies have been undertaken in developed and developing economies under the global value revalue of accounting information, such as [5]. Authors [6, 7], among others, concentrate on the banking sector, which they are not from Nigeria. Moreso, in Nigeria, studies like [1] investigated, emphasising banking and manufacturing companies, leaving conglomerate firms with little

or no studies despite their contribution to the economic development of Nigeria.

Furthermore, there are a lot of inconsistencies regarding the relationship and general agreement among the variables studied above. For instance, authors [7] reported a significant positive relationship among the variables. Still, a negative and insignificant relationship was observed among the study variables [6]. The domain remains the same, although they are not from the same economy.

Despite the importance of accounting information in all sectors, there is limited empirical evidence on the value relevance of accounting information in Nigerian specifically in conglomerates companies; therefore, the study tends to fill up the gap and contribute to the literature by investigating the value relevance of accounting information in listed conglomerates companies in Nigeria. In line with the above subject, the following research objectives were formulated.

The main objective of the study is to examine the value relevance of accounting information evidence from listed conglomerates companies in Nigeria, while the specific *goals* are to:

1. Examine the effect of earnings per share on return on the share price of equity of listed conglomerate firms in Nigeria.
2. Evaluate the effect of the book value of equity per share on the return on share price of equity of conglomerate firms in Nigeria.
3. Investigate the effect of dividend per share on return on the share price of equity of conglomerate firms in Nigeria.
4. Examine the effect of changes in earnings per share on the return on share price of equity of conglomerate firms in Nigeria.
5. Evaluate the effect of firm size and Leverage on return on the equity share price of conglomerate firms in Nigeria.

Research Questions:

1. How do earnings per share affect the return on share price of equity of listed conglomerate firms in Nigeria?
2. How does the book value of equity per share affect the return on the share price of equity of listed conglomerate firms in Nigeria?

3. What is the effect of dividend per share on the return on share price of equity of listed conglomerate firms in Nigeria?

4. Does changes in earnings per share affect the return on the share price of equity of listed conglomerate firms in Nigeria?

5. Does firm size and leverage affect the return on equity share price of listed conglomerate firms in Nigeria?

Research Hypothesis

H₀₁: Earnings per share do not significantly affect the return on share price of equity in conglomerate firms in Nigeria.

H₀₂: The book value of equity per share does not significantly affect the return on the share price of equity in conglomerate firms in Nigeria.

H₀₃: Dividend per share has no significant effect on return on share price of equity of conglomerate firms in Nigeria.

H₀₄: Changes in earnings per share have no significant effect on return on equity share price in conglomerate firms in Nigeria.

H₀₅: Firm size and leverage have no significant effect on return on share price of equity in conglomerate firms in Nigeria

Literature Review

The study is underpinned by the positive accounting theory that emerged in the 1960s by Zimmerman and Watts to explain and project accounting practices and policies. It is widely recognised in accounting and finance, predicting individuals' and companies' choices associated with accounting policies and procedures. The theory assumes that economic incentives influence accounting choices, with managers selecting policies that align with their interests or those of stakeholders regarding investment. From the perspective of capital market-based accounting research, researchers have used it to determine whether accounting information is helpful to investors, management, and the stock market. Although the author [3] was against the theory of concentrating on economic incentives to investors rather than general interest, it has strengthened the association between accounting information, earnings, and incentives driven by investors and management [8].

Authors [1] examine the value relevance of accounting information in an empirical analysis of the Pakistan stock exchange market banking sector. Data was obtained from commercial banks listed on the Karachi Stock Exchange for six years, from 2007 to 2012. The correlation coefficient, cluster analysis, and redundant variable test were used to measure the relevance of accounting information value relevance and check out the contribution of each variable in the model. The result indicates a strong relationship between accounting information and average share price; earnings per share, operational profit and firm size are also positive.

A similar study [6] investigated the value relevance of accounting information and share price in the financial service industry. Data was collected from the annual report and accounts of 20 listed financial firms in the Nigerian stock exchange from 2012-2018 and was analysed using Eviews 10. The study adopts the lease square method for statistical decisions. The result shows a positive and significant relationship between share price and firm size. In contrast, negative and insignificant associations were observed between dividend per share, earnings per share, book value of stake and cash flow from operation. The study recommends strictly following international financial reporting standards in preparing and presenting financial statements. The study is in line with [9] but contradicts the findings of [8].

However, [1] explores the relationship between the value relevance of accounting information and the share price of 60 manufacturing firms in Nigeria from 2010-2019 using conditions elimination sampling. Ex-post factor research design, OLS analysis and Granger causality test were adopted to test the hypothesis using E-view 9. Contrary to the findings, the result shows a significant positive relationship between dividends per share and share price. However, the domain and time frame differ. The study recommends that firms operating as manufacturing companies and regulatory agencies improve the quality of accounting information by following the standard in publishing their financial statement to achieve more value relevance to all the stakeholders.

Authors [7] assessed the moderating effect of corporate governance on the relationship between accounting information and stock market return of listed entities in Ghana using a sample

of 40 companies. The panel regression model was applied. The study employed cross-section dependence and cointegration tests and fully modified ordinary least squares (FMOLS) and dynamic least squares (DOLS). Unit root test results revealed that all the variables are integrated, while the cointegration test shows that accounting information variables were cointegrated in the long run. However, FMOLS and DOLS results indicate that all accounting information variables have an insignificant relationship with the stock market return except operating cash flow per share (OCFPS) and net tangible asset (NTA). The study concludes that corporate governance (Bsize) strengthens the relationship between total asset turnover (TAT), net real (NTA) assets and stock market return (SMR).

The impact of the reforms on accounting information's value relevance was examined in Iran from 1996-2008. Data from 93 companies were obtained from the Tehran Stock Exchange and were analysed using descriptive and inferential statistics. The portfolio returns approach and regression variation were used. Findings indicate that accounting information is value relevant and earnings per share is higher than the book value of equity per share and concludes that cash-based information is less valuable than accrual-based information.

Authors [7] assessed the value relevance of accounting information of the banking industry in ASEAN. The study adopts panel regression using the targeted sampled data of 82 banks listed in five ASEAN countries. The results show that earnings and book value statistically positively impact stock prices. Also, revenue is more related to buying than other variables. It is recommended that the region's banking industry advance the value relevance of information on EPS and BVPS in its financial statements to attract investors to invest in the company's shares across the region.

Most of the studies reviewed concentrated on the banking and manufacturing sector and the banking sector, leaving behind conglomerate companies despite their contribution to economic development. Also, there is a lack of general agreement among the variables in question, which tends to investigate the value relevance of accounting information of listed conglomerate companies in Nigeria.

METHODOLOGY

The study adopts an ex-post factor research design, which uses historical data to make decisions. The justification was that the survey uses historical data drives from annual reports and accounts of the listed conglomerate companies under investigation. More so, it was adopted in this study to establish a relationship between value relevance and accounting information of listed Conglomerate companies in Nigeria.

The study population comprises listed conglomerate companies in the Nigerian Exchange Group (Table 1).

Table 1 – Population of the Study

No	Company	Date of Incorporation	Date of Listing	Date of Delisting
1	A.G Leventis Nigeria Plc	1951	1978	2019
2	UAC of Nigeria Plc	1931	1990	-
3	Chellarams Plc	1947	1977	-
4	SCOA Nigeria Plc	1969	1977	-
5	John Holt Plc	1961	1974	-
6	Transnational Corporation of Nigeria Plc	2000	2006	-
7	Custodian Investment plc	1991	1997	-

A company to be included in the population sample must be listed in Nigeria Exchange Group on or before December 2006. It must have a complete annual report and account for the period to be covered by the study to avoid missing data. However, using a simple convenience sampling technique, A. G. Leventis Nigeria Plc failed to meet the study sample as the company was delisted from Nigeria Exchange Group in 2019.

Therefore, out of seven companies, only six formed part of the study's sample population, as presented in Table 2.

Table 2 – Population of the Study (2)

No	Company	Date of Incorporation	Date of Listing
1	UAC of Nigeria Plc	1931	1990
2	Chellarams Plc	1947	1977
3	SCOA Nigeria Plc	1969	1977

No	Company	Date of Incorporation	Date of Listing
4	John Holt Plc	1961	1974
5	Transnational Corporation of Nigeria Plc	2004	2006
6	Custodian Investment plc	1991	1997

Table 3 – Variables of the Study and Measurement

Variables	Definition	Measurement
ROSP	Return on share price of equity	Total shareholder's equity minus preference equity divided by total outstanding
EPSH	Earnings per share	Net income minus dividend on preference shares divided by average outstanding shares
BVEP	Book value per share	The ratio of the shareholders' fund of cash of each firm to the latest

Variables	Definition	Measurement
		outstanding ordinary shares in issue
DIPS	Dividend per share	The total amount of compensation attributed to each share
CIEP	Changes in earnings per share	Changes in current earnings by changes in the preceding year's market value of equity.
FISZ	Firm size	Natural logarithm of total sales
LEVE	Leverage	The ratio of debt to equity

The structural form of the model can be specified as (1). Equation (2) can be re-specified as a panel stochastic form model. The equation (3) can be also re-specified to fit a complete model as follows.

$$ROSP_{it} = f(EPSH_{it}, BVEP_{it}, DIPS_{it}, CIEP_{it}, FISZ_{it}, LEVE_{it}) \quad (1)$$

$$ROSP_{it} = \alpha_1 + \beta_2 EPSH_{it} + \beta_3 BVEP_{it} + \beta_4 DIPS_{it} + \beta_5 CIEP_{it} + \beta_6 FISZ_{it} + \beta_7 LEVE_{it} + \mu_{it} \quad (2)$$

$$ROSP_{it} = \alpha_1 + \beta_2 EPSH_{it} + \beta_3 BVEP_{it} + \beta_4 DIPS_{it} + \beta_5 CIEP_{it} + \beta_6 FISZ_{it} + \beta_7 LEVE_{it} + \varphi_i + \mu_{it} \quad (3)$$

where ROSP = Return on Share Price of Equity; EPSH = Earnings per Share; BVEP = Book Value of Equity per Share; DIPS = Dividend per Share; CIEP = Changes in Earnings per Share; FISZ = Firm Size; LEVE = Leverage.

RESULTS AND DISCUSSION

Table 4 shows the descriptive statistics of variables for the study. It is clear from the table that the return on share price recorded by five listed conglomerate firms was 21.07% between 2006 and 2022.

Table 4 – Descriptive Statistics

Variables	Observation	Mean	Maximum	Minimum
ROSP	102	21.07	52.24	1.07
EPSH	102	48.4201	402.99	1.54
BVEP	102	39.0123	290.48	1.15
CEIP	102	27.9200	692.97	-44.44
DIPS	102	51.1240	206	0.00
LEVE	102	0.54	5.2	3.03
FISZ	102	9.31	5.90	4.87

More so, the firms obtained an average of 48%, 39%, 27% and 51% for earnings per share

(EPSH), book value earnings per share (BVEP), and change in earnings per share (CEIP), respectively. As for the leverage (LEVE) and Firm size (FISZ), an average of 0.54k of debt to N1 of equity and 9.31% were recorded. The minimum and maximum values of all the variables within the seventeen years period are shown in Table 4.

Table 5 shows a correlation between the independent variables to detect the possible degree of a perfect linear relationship. The table reveals an insignificant relationship between most variable pairs except for the change in earnings per share (CIEP) and book value of earnings per share (BVEP). For instance, the correlation between BVEP and EPSH is 0.42 and between DIPS and EPSH is 0.067, while between FISZ and LEVE is 0.23. However, the relationship between DIPS and CIEP, LEVE and BVEP and between FISZ and EPSH are all negative (0.13, 0.23 and -0.03 respectively).

Table 5 – Correlation Matrix

	EPSH	BVEP	CEIP	DPIS	LEVE	FISZ
EPSH	1.0000					
BVEP	0.4202	1.0000				
CEIP	0.4613	0.8561	1.0000			
DPIS	0.0674	0.2347	-0.1315	1.0000		
LEVE	0.0000	-0.2331	-0.1109	-0.0721	1.0000	
FISZ	-0.0301	-0.1942	-0.3427	-0.1701	0.2308	1.0000

Multicollinearity exists if there is a high correlation among independent variables in a model from 50% to 90%. Since none of the correlation figures $\geq 50\%$, it implies no multicollinearity problem.

Table 6 the results indicates that (ROSP) is significantly positively related to the change in earnings per share (CIEP) with coeff= 0.2140 and dividend per share (DIPS) (coeff= 0.481). Also, ROSP has a significant negative relationship with book value earnings per share (BVEP) (coeff= -0.4810) with a t-statistics value of -1.2410 and P-values of 0.0591.

Table 6 – Regression Result

ROSP	Coefficient	Std Error	t-Statistics	Prob.
Constant	-162.450	57.052	-2.8527	0.0006
EPSH	-0.355	0.2191	-1.6337	0.1100
BVEP	-0.457	0.2350	-1.2410	0.0591
CIEP	0.2140	0.2190	1.7701	0.0830
DIPS	0.481	0.2269	2.1341	0.0380
LEVE	4.534	3.1002	1.4624	0.1500
FISZ	26.583	57.0520	3.1415	0.0006
R ²	0.5220			
Adjusted R ²	0.6801			
F-statistic	3.8307			
Prob(F-stat)	0.0033			

This implies that an increase or change in earnings per share would induce a rise of 0.39% in return on share price, given that all other things are equal. The negative coefficient of BVEP shows that a drop of 0.46% in ROSP would be recorded if the BVEP could rise by 1%. Also, ROSP has a significant positive relationship with the FISZ,

indicating that an increase in FISZ would bring about a surge of 26.58% in ROSP.

Also, earnings per share (EPSH), change in earnings per share CIEP, and leverage are not statistically significant. Regarding the model's goodness of fit, an R-squared of 0.52 shows that 52% of the conglomerates' systematic variations in accounting information were explained by value relevance variables, LEVE and FISZ. Overall, the F-statistic of 3.83 or 38% shows that the null hypothesis that all the explanatory variables considered are concurrently equal to zero could not be accepted. Hence, It can therefore be inferred that accounting information is value-relevant in listed conglomerates in Nigeria. The study is in line with [7], who supports a significant relationship between return on share price and dividend per share.

Thus, it can be concluded that accounting information's value relevance significantly impacts listed conglomerate firms in Nigeria. Hence, it must be appropriately handled by applying international accounting standards in preparing and presenting accounting information to attract investors.

CONCLUSIONS

The study discovered that return on share price has a significant positive relationship with CIEP and DIPS but an inverse relationship with BVEP. More so, the coefficient of EPSH is not statistically substantial for ROSP. Based on this, the study concludes that accounting information of return on share price, change in earnings per share and dividend per are values relevant in conglomerate companies listed in Nigeria.

Standard should strictly comply when reporting and disclosing all accounting information in the published financial statement to maintain value relevance and attract more investors. Also, the dividend policy of the companies should be reviewed to attract more investors to the management. More so, there is a need for effective management of these components to increase the firm's value. Similarly, companies should plan and control their operations, amend the short-falls, consider the principles of finance in their decision making and engage the services of professionals in complex business areas.

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In Light of Climate Change Threat: Does Increased Funding of Meteorological Services Offer a Solution? An Accounting Perspective

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Abstract. This study explores the interplay between climate change, land degradation, and the potential of increased funding for meteorological services to enhance global climate resilience, framed within an accounting perspective. Land degradation due to climate change has far-reaching ecological and economic implications. This research investigates the relationship between monetary investments in meteorological services and their efficacy in predicting and mitigating climate-related hazards. Employing a comprehensive methodology, the study analyses existing literature gathers data from national meteorological agencies and uses quantitative research methods to assess the impact of funding on meteorological services. The findings bear implications for policymakers, offering insights into the benefits of heightened financing for meteorological infrastructure. By providing an innovative examination of climate change through the accounting lens and addressing a crucial gap in knowledge, this study contributes to the discourse on climate resilience and sustainable practices, advocating for a more resilient future.

Keywords: accounting perspective; climate change; meteorological services.

INTRODUCTION

In the wake of a harrowing announcement by President Joe Biden on Thursday, July 27, 2023, the urgency of addressing climate change and its devastating consequences has reached a tipping point. Addressing the mayors of Phoenix and San Antonio in a virtual summit, President Biden articulated deep concern over the dangerous heat-waves plaguing vast regions of the United States. This dire situation has prompted the unveiling of strategies to assist communities in managing the extreme temperatures. The undeniable and alarming reach of climate change's impact becomes evident through the unprecedented triple-digit temperatures experienced by cities like Phoenix and San Antonio and the recent surge in severe flooding and pervasive wildfire smoke

that engulfs the nation. As global scientists predict July to become the hottest month ever recorded, an astonishing 174 million Americans now contend with heat-related alerts spanning 35 states. President Biden's emphasis on the gravity of the scenario resonates as heat supercedes floods, hurricanes, and tornadoes as the leading cause of weather-related fatalities. In response to this mounting crisis, this study stands as an unequivocal retort to President Biden's call to action, and it earnestly engages with the pivotal inquiry: "Does Increased Funding of Meteorological Services Offer a Solution? An Accounting Perspective." Amidst the relentless spectre of climate change and its profound effects on communities, economies, and ecosystems, the urgency to uncover viable solutions has never been more compelling. From an accounting perspec-

tive, this research delves into the ramifications of amplified funding for meteorological services in projecting and mitigating the alarming threats climate change poses. With a focus on accounting methodologies for evaluating climate-related risks, valuing carbon assets, and fostering sustainable practices, this study seeks to illuminate crucial insights for informed decision-making, thus guiding policymakers and stakeholders towards effective strategies in the global battle against climate change.

Climate change is one of the most formidable and intricate challenges confronting humanity in the 21st century [1]. The relentless surge in greenhouse gas emissions, propelled predominantly by human activities encompassing industrialisation, deforestation, and fossil fuel consumption, has catalysed unprecedented shifts within the Earth's climate systems. These reverberations span ecosystems, societies, and economies, engendering profound threats and reshaping the fabric of our planet's environmental and social domains [2]. The intensification of extreme weather occurrences, escalating sea levels, and ecological disruptions underscores the necessity for a holistic grasp of the intricate interplay of variables that collectively sculpt the complex tapestry of the climate change threat. In academia, this research carries paramount significance by contributing to the ever-expanding reservoir of knowledge concerning climate change.

This study advances the frontiers of existing scholarship in this pivotal arena by delving into the intricate dance between various variables and the looming climate change threat. The research artfully dissects the complicated interactions spanning environmental, economic, and social facets, thereby facilitating a comprehensive comprehension of the nuanced dimensions underpinning the climate crisis. Global warming, attributed predominantly to greenhouse gas emissions from fossil fuel combustion, has engendered progressive Earth warming, a phenomenon renowned as the greenhouse effect. This thermal shift has ushered in a rapid escalation of global temperatures and an array of interconnected climate-driven consequences. The pronounced severity and heightened frequency of severe climatic patterns notably punctuate the most palpable repercussions of climate change. Prolonged heat waves, surging in intensity, have precipitated an uptick in heat-related ailments and fatalities, particularly among marginalised populations. The onslaught of fierce storms and

hurricanes has wreaked havoc on coastal people, while protracted droughts have precipitated water scarcity, agricultural failures, and food insecurity across diverse global locales [3]. Furthermore, the immediacy of rising sea levels imperils coastal regions and small island nations, obliging communities to confront displacement while erasing invaluable ecosystems.

This study's heart lies in an empirical investigation, grounding its robust, evidence-based conclusions. The research aims to assess the influence of pivotal variables on the gamut of climate change hazards. This research seeks to decipher the impact of these factors, bolstering the accuracy and credibility of its conclusions. Moreover, a series of extraordinary climate-related calamities in recent years serves as poignant reminders of the imperative for action to combat climate change. The aftermath of extreme flooding, catastrophic wildfires, unprecedented heatwaves, and violent hurricanes are indelible testaments to the tangible toll climate change exacts on humanity and ecosystems. These profound real-world events are harnessed as benchmarks within the research, underscoring the imperative for swift global action in the face of climate change. A monumental international endeavour, the 2015 Paris Agreement embodies a collective commitment to combat climate change. With nations universally pledging to curtail global warming beneath the 2-degree Celsius threshold above pre-industrial levels and with a more ambitious aspiration of 1.5 degrees Celsius, this accord crystallises global determination to mitigate the repercussions of environmental degradation.

This research contributes to realising the lofty climate targets articulated within the Paris Agreement, striving to unravel pragmatic solutions and strategies. Embracing the opportunities for innovation, adaptability, and collaborative action that climate change affords, global endeavours to transition to low-carbon economies, champion sustainable energy sources, and embrace cutting-edge carbon capture and storage technologies are imperative in the drive to curtail climate change. Simultaneously, investment in climate-resilient infrastructure and ecosystems bolsters the capacity to navigate evolving environmental paradigms. The role of governments, international organisations, and civil society in orchestrating a response to climate change cannot be overstated. Policies endorsing sustainable practices, mechanisms for carbon pricing, and the infusion of investments into renewable ener-

gy constitute foundational pillars of a comprehensive response to climate change [4]. Equally pivotal are campaigns aimed at heightening public awareness, engendering behavioural shifts, and fostering individual and collective accountability for reducing carbon footprints. In these endeavours, climate change's far-reaching and profound consequences for human existence become starkly evident. As global temperatures ascend and climatic patterns devolve into an increasing quagmire of unpredictability, communities worldwide confront the grim realities of intensified weather events. Escalating heatwaves, distinguished by their frequency and intensity, jeopardise human well-being, particularly among the most vulnerable strata of society.

The encroaching rise of sea levels menaces coastal regions and low-lying islands, triggering the displacement of entire communities and the obliteration of cherished livelihoods. Additionally, shifts in precipitation patterns beget heightened instances of catastrophic floods and prolonged droughts, posing an existential threat to agriculture, potable water supplies, and food security. The more frequent occurrence of fierce storms and hurricanes lays waste on infrastructure, disrupts economic equilibrium, and imparts peril to human lives. Moreover, the shifting climate propels the proliferation of infectious diseases, compounding the burden on human health and overburdened healthcare systems. In the face of these formidable challenges, the imperative for immediate action to mitigate climate change and adapt to its cascading effects looms large. This underscores the pivotal significance of deciphering the complex interplay of variables undergirding this multifaceted menace. As climate change casts its ominous shadow, it is evident that a decisive, global, and collaborative response is imperative.

The increasing intricacy and interconnectedness of climate change variables accentuate the urgency of research scrutinising their ramifications on the climate crisis. This study's academic gravitas, empirical rigour, and mindful consideration of real-world occurrences within a global context coalesce to erect a robust foundation for prudent decision-making and the formulation of policies. Embracing the manifold challenges and opportunities posed by climate change, it becomes our shared obligation to rally as a global collective, effectuating impactful solutions, safeguarding our planet's fragile ecosystems, and forging a future that is both sustainable and resilient for all.

Rooted in the pivotal role of an accounting perspective in comprehending the threats posed by climate change, the methodology of this study pivots around a comprehensive literature review and an astute analysis of secondary data gleaned from esteemed sources.

The study emphasises the esteemed Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD) and prominent peer-reviewed academic journals, scientific reports, policy papers, and publications from reputable international organisations. Through this comprehensive exploration, the study delves into the gamut of accounting methodologies, discerning their capacity to measure, disclose, and grapple with climate-related risks and the attendant environmental costs. Interpretive and qualitative scrutiny of select studies and reports constitutes the bedrock of the data analysis, illuminating pivotal accounting principles, standards, and practices that bear pertinence to climate change. By anchoring this research in an accounting perspective, the aim is to germinate a coherent theoretical framework that enriches our understanding of the symbiosis between financial dimensions and the threats imposed by climate change. This methodological trajectory crystallises valuable insights into the indispensable role played by the accounting profession in the valuation of climate risks, the estimation of carbon assets, and the bolstering of transparency and accountability within the ambit of climate-related financial disclosures. Cognizant of the constraints inherent in relying solely upon existing literature, the study exercises meticulous discernment in data curation and analysis, thereby upholding the robustness, integrity, and credibility of the research's findings. Through its profound emphasis on an accounting perspective, this study bequeaths invaluable insights into the strategies for mitigating and adapting to climate change from an economic and accounting standpoint, advancing our comprehension of the mechanism to address the urgent challenges precipitated by climate change on a global scale.

However, this study critically explores the intricate web linking climate change, land degradation, and meteorological services funding. Through the accounting lens, our research endeavours to unravel the potential of increased financing for meteorological services as a formidable solution to the mounting threats posed by climate change. This study aims to contribute to informed decision-making, policy formulation,

and sustainable practices by dissecting the multifaceted interplay of financial aspects and environmental challenges. Through rigorous analysis, empirical investigation, and an unwavering commitment to unveiling new perspectives, we seek to equip stakeholders, policymakers, and communities with the tools to forge a path toward a more resilient, climate-conscious, and prosperous future.

Theoretical basis

Climate change is a complex and urgent global issue that necessitates a thorough comprehension of the factors determining its dangers. In this section, we analyse the effects of numerous independent variables on climate change threats by presenting a rigorous literature review that draws from a wide range of fields. We also look at publications on the dependent variable to better understand the intricate interaction of causes causing the climate issue. Combining these results, we create a theoretical framework that guides the study's hypotheses regarding greenhouse gas emissions influence. Researchers have investigated and demonstrated that greenhouse gas emissions significantly contribute to climate change. The Intergovernmental Panel on Climate Change (IPCC) reports have consistently emphasised the critical link between increasing concentrations of greenhouse gases, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), and global warming. Burning fossil fuels for energy production and industrial processes is the most significant contributor to CO₂ emissions [5].

Studies [6] show that these emissions lead to heat retention in the atmosphere, resulting in temperature rise and myriad climate impacts, including extreme weather events, sea-level rise, and ecosystem shifts. Moreover, authors [7] warn that surpassing specific global warming thresholds could trigger irreversible damage to coral reefs, polar ice sheets, and global food security. Given the profound impact of greenhouse gas emissions on climate change, we hypothesise that higher greenhouse gas emissions will be positively associated with increased climate change threats. Land Use and Deforestation: Land use change, mainly deforestation, significantly contributes to climate change threats. Deforestation releases stored carbon into the atmosphere, reducing the planet's capacity to sequester CO₂ and intensifying the greenhouse ef-

fect. The conversion of forests into agricultural land, urban areas, and other uses diminishes biodiversity and disrupts local and regional climate patterns. As authors [8] mentioned, such things might lead to not addressing the security risks from the possible environmental and climate change degradation challenges. Research [9] highlights that deforestation in tropical regions, such as the Amazon and Indonesia, has vast implications for climate change, affecting precipitation patterns and exacerbating the frequency and intensity of droughts and heat waves.

Additionally, deforestation contributes to the loss of critical ecosystem services, such as water regulation, soil protection, and carbon sequestration [10]. We hypothesise that increased land use change and deforestation will positively correlate with higher climate change threats. Also, Socio-economic Factors and Carbon Intensity have notable influence, where the climate change impacts are not evenly distributed, and social and economic factors play a significant role in shaping vulnerabilities. Research [11] reveals that nations with higher carbon intensity, measured as higher CO₂ emissions per unit of economic output, experience more significant climate-related risks and vulnerabilities.

Socioeconomic disparities also influence climate change threats. Especially in developing countries, they bear a disproportionate burden of climate change impacts due to limited access to resources, infrastructure, and adaptive technologies [12]. Moreover, rising sea levels and extreme weather events exacerbate inequalities, increasing migration and conflicts over scarce resources [13]. Based on this research, we hypothesise that higher carbon intensity and socioeconomic disparities will be positively associated with increased climate change threats. There should be adaptation Mitigation Strategies, where various adaptation and mitigation strategies have been proposed and implemented in response to climate change. Adaptation strategies aim to enhance resilience to climate change impacts, while mitigation efforts focus on reducing greenhouse gas emissions to limit global warming. Research [14] emphasises the importance of proactive adaptation, such as building climate-resilient infrastructure, implementing disaster preparedness plans, and enhancing early warning systems. These measures can reduce vulnerability and improve coping with climate-related challenges. Mitigation efforts encompass transitioning to renewable energy sources, promoting energy effi-

ciency, and implementing carbon pricing mechanisms [15]. Every country is pledging to limit global warming to below 2 degrees Celsius above pre-industrial levels [16]. We hypothesise that more significant investment in adaptation and mitigation strategies will negatively affect climate change threats. In addition, the impact of land degradation and biodiversity loss is a matter where land degradation, driven by unsustainable land use, overexploitation, and climate change, exacerbates climate change threats. Research [17] indicates that land degradation reduces the land's capacity to sequester carbon and increases vulnerability to extreme weather events, such as droughts and floods.

Moreover, biodiversity loss is intricately linked to climate change. Studies [18] demonstrate that biodiversity loss can disrupt ecosystems, reducing their resilience to climate impacts and hindering their ability to provide essential services, such as carbon sequestration and water purification. We hypothesise that increased land degradation and biodiversity loss will positively correlate with higher climate change threats.

Further, the role of technology and innovation in mitigating and adapting to climate change is a significant area of research [19]. Technological advancements, such as renewable energy technologies and carbon capture and storage, can potentially reduce greenhouse gas emissions and promote sustainable practices [20]. Previous studies emphasised the importance of innovation in driving the transition to a low-carbon economy. Authors [21] mentioned that technological breakthroughs in energy storage, smart grids, and electric mobility are crucial in decarbonising energy systems and reducing dependency on fossil fuels. Furthermore, Authors [22] show that digital technologies, such as artificial intelligence and big data analytics, play a vital role in enhancing climate modelling, early warning systems, and disaster management. These technological advancements can strengthen adaptation strategies and improve climate resilience. We hypothesise that greater utilisation of technology and innovation will be negatively correlated with climate change threats.

Social and Behavioral Aspects: Understanding human behaviour and societal responses to climate change is essential in shaping effective policy interventions. A study [23] explored the role of individual attitudes, values, and social norms in influencing pro-environmental behaviours.

Moreover, research [24] highlights the significance of public perception and media representation of climate change in shaping public opinion and motivating climate action. Such a concept underscores the importance of effective messaging and framing to engage the public in climate-related issues. We hypothesise that positive social and behavioural shifts, such as pro-environmental attitudes and effective climate change communication, will negatively correlate with climate change threats.

This study aims to provide essential insights into interpreting the complex dynamics of this worldwide challenge by investigating the interaction of these variables and their influence on climate change concerns. These hypotheses will direct our empirical study and help us create well-informed policy proposals to combat climate change effectively. The thorough literature analysis offers a strong foundation for our research, leveraging the accumulated knowledge of earlier studies to increase the rigour and importance of our findings. It is essential to emphasise the critical and frequently underappreciated significance of the accounting approach in understanding the complex effects of climate change in the context of this research review. The accounting discipline's assessment, measurement, and disclosure of climate-related risks and their financial ramifications are critical tasks [25]. This study aims to close the knowledge gap between financial reporting and climate change science by adopting an accounting approach, allowing for a more thorough understanding of the economic effects of climate change. Organisations can assess their greenhouse gas emissions and environmental footprints using accounting approaches like carbon accounting and ecological cost analysis, which can help them make more informed decisions and advance sustainability initiatives.

Furthermore, corporations have a framework to use when disclosing climate-related information in their financial reports thanks to the rules and suggestions made by illustrious organisations like the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD). This improves transparency and accountability. By incorporating accounting methods and concepts into evaluating climate change risks, firms, investors, and politicians will be better equipped to create efficient plans for reducing and adapting climate risk. The need to incorporate climate factors into business financial evalu-

ations is further highlighted by accounting's role in valuing carbon assets and understanding their financial repercussions. Understanding the accounting viewpoint on climate change is essential for making educated decisions, managing risks, and conducting ethical business. This literature review aims to shed light on the symbiotic link between accounting and climate change, stressing the crucial role accounting plays in tackling climate change challenges. It integrates pertinent material from multiple disciplines, particularly accounting and climate science. The research aims to enhance ethical company behaviour and incorporate climate issues into financial choices through this thorough examination, ultimately advancing the development of a more robust and environmentally conscious world economy.

The multidimensional threat of climate change hangs over humanity and necessitates immediate action and international cooperation. Rising greenhouse gas emissions, deforestation, land degradation, and socioeconomic disparities contribute to climate change threats. In this discussion, we explore the pivotal role of awareness in understanding and mitigating these threats. Heightened awareness of climate change and its implications is crucial for fostering informed decision-making, driving behavioural changes, and shaping policy responses [26]. Understanding climate change is a wake-up call for individuals, communities, and governments alike. As awareness spreads, people become increasingly aware of the dire consequences of unabated greenhouse gas emissions. Understanding the link between human activities and global warming motivates individuals to adopt more sustainable lifestyles, reducing their carbon footprints and supporting eco-friendly practices. Additionally, businesses must assess and minimise their environmental impacts, embracing green technologies and eco-conscious production methods.

One of the primary benefits of climate change awareness lies in its influence on policymaking and governance [27, 28, 29, 30, 31, 32, 33, 34, 35]. As the public becomes more informed about the severity of climate change threats, they demand decisive action from policymakers. In response to public pressure and growing awareness, governments are more inclined to implement robust climate policies, set emission reduction targets, and support renewable energy initiatives.

Climate change awareness also contributes to international cooperation and commitments, as nations recognise the need for collective efforts to combat a global challenge that transcends borders. Furthermore, attention plays a critical role in addressing deforestation and land degradation, both significant drivers of climate change. Individuals and organisations support conservation efforts and reforestation programs by understanding the ecological importance of forests and the consequences of their destruction. Heightened awareness of the link between land use and climate change drives sustainable land management practices, protecting natural ecosystems and preserving biodiversity. Socioeconomic factors intersect with climate change awareness, creating opportunities for positive change. As people become more conscious of the socioeconomic disparities climate change exacerbates, they advocate for policies prioritising vulnerable communities' needs and enhancing climate resilience. Climate change awareness fosters ethical consumerism, as individuals increasingly seek products and services from companies committed to sustainability and social responsibility [36].

Adaptation and mitigation strategies receive a significant boost from climate change awareness. As individuals and communities become more aware of the climate change impacts already affecting their lives, there is more substantial support for adaptation measures that enhance resilience to extreme weather events and rising sea levels. Moreover, awareness fosters investment in innovative mitigation technologies, such as renewable energy sources and carbon capture technologies, accelerating the transition to a low-carbon economy. Social and behavioural aspects are deeply intertwined with climate change awareness. The more informed individuals are about the consequences of inaction, the more likely they are to mobilise for change. Climate change attention drives public engagement, from local environmental initiatives to global climate protests, amplifying the call for urgent action. Behavioural changes such as reducing energy consumption and advocating for sustainable policies gain momentum as awareness empowers individuals to become agents of change in their communities. Based on the above, it is clear that understanding and knowledge of climate change stand as a critical catalyst in confronting the threats posed by global environmental degradation. Attention drives transformative action at

individual, societal, and policy levels by fostering a deeper understanding of the interconnectedness between human activities and climate change. As individuals and communities embrace climate-conscious practices and demand effective policies, the world stands a better chance of mitigating the impact of climate change and securing a sustainable future for generations to come.

This theoretical framework functions as the conceptual cornerstone of the research, providing a structured and systematic approach to comprehending the interrelationships among the variables under scrutiny. It guides the research design, data collection, and analysis by aligning the research objectives with established theories and the existing body of knowledge. The theoretical underpinning for our investigation into the impacts of heightened funding for meteorological services as a defence against climate change threats is elucidated in this section. The framework delves into the intricate interplay among greenhouse gas emissions, land use changes, socioeconomic factors, mitigation and adaptation strategies, land degradation, biodiversity loss, technological advancements, and cultural and behavioural elements in shaping climate change threats. It integrates environmental science, social sciences, economics, and policy research concepts.

This structure will direct our empirical investigations and contribute to developing well-informed policy advice to combat global climate change.

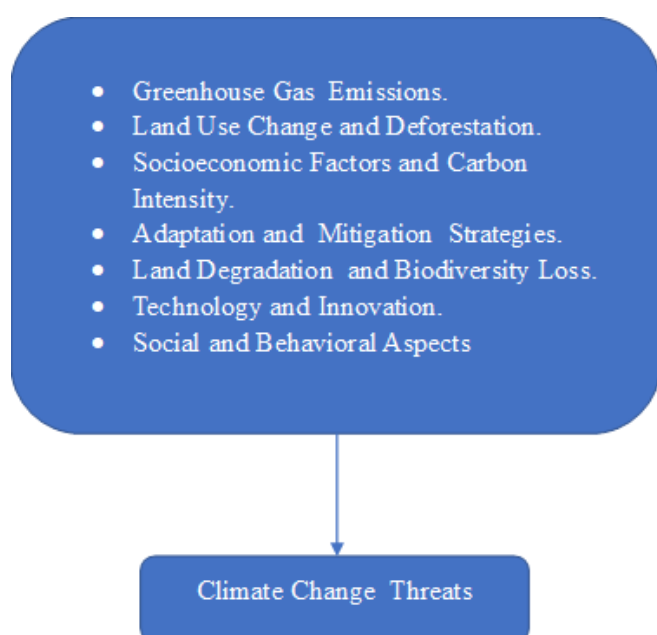


Figure 1 – Global Climate Change Threats

Drawing from the extensive literature review and related studies, we develop the following conceptual hypotheses for our research:

Hypothesis 1: Higher levels of greenhouse gas emissions will be positively associated with increased climate change threats.

Hypothesis 2: Increased land use change and deforestation will positively correlate with higher climate change threats.

Hypothesis 3: Higher carbon intensity and socioeconomic disparities will be positively associated with increased climate change threats.

Hypothesis 4: Greater adaptation and mitigation strategies investment will negatively affect climate change threats.

Hypothesis 5: The hazard of climate change is expected to be associated positively with a more significant loss of biodiversity and degradation of land.

Hypothesis 6: Climate change threats will be negatively correlated to increased use of technology and innovation.

Hypothesis 7: Threats from climate change will be inversely associated with improvements in social and behavioural characteristics.

METHODS

The methodology section of this theoretical work outlines the study's approach to investigating the connections between variables from an accounting perspective, along with the data collection strategies and analytical methodologies that support the theoretical hypotheses. Given the conceptual nature of this study from an accounting standpoint, the research relies on an extensive literature review and secondary data analysis from reputable sources rather than primary data collection. The research design, data sources, and analytical techniques employed in this study are detailed in the following sections.

Research Design. This research strategy approached with an accounting perspective, adopts a qualitative methodology centred on a comprehensive review of existing literature and synthesising data from prior studies. The project's primary objective is to examine and discuss accounting practices associated with climate change thoroughly. This includes financial reporting of greenhouse gas emissions, carbon accounting, and the role of accounting in evaluating

adaptation and mitigation measures. The study aims to construct a coherent theoretical framework from an accounting standpoint, drawing insights from other disciplines and applying an accounting lens to formulate fundamental hypotheses.

Data Sources. This research's principal sources of information comprise peer-reviewed academic journals, scientific research, policy papers, and publications from reputable global organisations. A specific focus is placed on the accounting literature relevant to climate change. These sources offer information on accounting methodologies for quantifying and disclosing climate-related risks, environmental costs, and corporate sustainability performance. Documents from entities such as the Financial Stability Board (FSB) Working Group on Climate-related Financial Disclosures (TCFD) and other pertinent accounting and climate-related authorities contribute valuable insights and perspectives.

Data Analysis. The data analysis in this conceptual study is predominantly qualitative and interpretive, with a particular emphasis on accounting-related aspects. The research team meticulously analyses selected studies and papers to identify accounting standards, practices, and principles applicable to climate change. Methodologies for assessing carbon assets, analysing climate-related risks, and disclosing relevant information in financial statements are given special consideration. The comprehensive examination of accounting literature aims to validate the conceptual framework and assumptions from an accounting standpoint, seeking relevant themes, patterns, and trends. Through this analysis, the study aims to synthesise existing accounting knowledge related to climate change while contributing novel insights to the field of climate change accounting.

The methodology employed in this conceptual study, grounded in an accounting perspective, involves a qualitative research design that draws from diverse data sources. The systematic review of literature and data analysis, viewed through an accounting lens, culminate in the formulation of conceptual hypotheses. These hypotheses will guide empirical research and inform policy recommendations, all from an accounting standpoint, to effectively address the threats posed by climate change.

RESULTS AND DISCUSSION

The results of this study underscore the critical role of accounting in addressing the threat of climate change through increased funding for meteorological services. As the study delves into this accounting perspective, it reveals various promising ways to combat the increasing dangers posed by climate change. Given the relentless impacts of climate change on societies, economies, and ecosystems, the need for urgent and effective solutions is critical. The following are highlights of how accounting can contribute to efforts to advocate for increased funding for meteorological services as a powerful solution:

Enhancing Climate-Related Financial Reporting: Amplifying the funding for meteorological services paves the way for more accurate climate data collection and analysis. This improved data can then be seamlessly incorporated into financial statements, enabling investors and company owners to gain deeper insights into both the opportunities and threats linked to climate change. By adhering to robust climate-related financial disclosure standards set by entities such as the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), stakeholders can allocate resources wisely. This, in turn, supports efforts in climate resilience and implementing sustainable practices.

Valuing Carbon Assets and Emission Reduction Strategies: Adequate financing for meteorological services is instrumental in assessing carbon assets and gauging the financial benefits of emission reduction plans. The availability of accurate climate data, made possible by increased funding, helps organisations and governments value their carbon assets and comprehend the financial advantages associated with adopting low-carbon technologies. This encourages the transition towards a low-carbon economy and incentivises investments in climate-friendly projects like renewable energy.

Incorporating Climate Risk Assessments in Business Strategies: Advancing forecasting abilities within meteorological agencies equips businesses to assess and manage climate-related risks more effectively. Accounting frameworks can facilitate the incorporation of climate risk assessments into corporate strategies. This ensures that organisations are well-prepared to navigate the physical, regulatory, and reputational hazards brought about by climate change. Enhanced risk management practices mitigate potential fi-

nancial losses and foster long-term sustainability and resilience.

Driving Sustainable Supply Chains: Increased funding for meteorological services empowers supply chains to more comprehensively evaluate climate-related risks and vulnerabilities. Integrating this information into supply chain accounting equips businesses with insights into potential disruptions and vulnerabilities from climate change. This, in turn, encourages adopting sustainable sourcing practices and promotes collaboration with suppliers to minimise overall environmental impacts.

Fostering Climate-Conscious Investment: From an accounting perspective, augmented funding for meteorological services enhances the availability of reliable climate data for investors. This, in turn, drives the growth of sustainable finance and facilitates the integration of environmental, social, and governance (ESG) criteria into investment decisions. Investments guided by climate considerations channel capital towards climate-resilient projects and businesses, accelerating the global transition towards a low-carbon and climate-resilient economy.

Moreover, accounting emerges as a potent tool in the battle against climate change, with increased funding for meteorological services enhancing its effectiveness. The suggestions and solutions outlined here emphasise the crucial role of accounting methodologies in promoting climate resilience, sustainability, and informed decision-making. By embracing the concept of increased funding for meteorological services as a powerful solution from an accounting perspective, a pathway is paved for transformative action in combatting the destructive effects of climate change and securing a sustainable future for generations to come.

This study holds significant implications for addressing the complex and urgent issue of climate change. The integrated approach of combining accounting principles with meteorological services offers a novel perspective on how financial practices can be pivotal in mitigating and adapting to climate change threats.

Enhancing climate-related financial reporting, valuing carbon assets, incorporating climate risk assessments, driving sustainable supply chains, and fostering climate-conscious investment represent strategic actions that various stakeholders can adopt. By allocating increased funding to me-

teorological services, decision-makers can tap into more accurate and reliable climate data, enabling them to make more informed choices that support climate resilience and sustainability.

Furthermore, aligning accounting practices with climate-related objectives, as outlined in the suggestions and solutions, underscores the potential for positive synergies. Robust financial disclosure standards, such as those advocated by the TCFD, enhance transparency and facilitate a more comprehensive understanding of climate risks and opportunities. This, in turn, enables more effective resource allocation and the implementation of strategies that contribute to long-term climate resilience.

However, it is crucial to acknowledge the limitations inherent in this study. The reliance on existing literature and secondary data sources might introduce biases or gaps in the analysis. Climate change's multifaceted and evolving nature presents challenges in fully capturing its complexities within a conceptual framework. Contextual variations and forecasting uncertainties could impact the generalizability of the findings to diverse regions and industries. Despite these limitations, the study's robust integration of accounting principles and meteorological services offers a valuable perspective on addressing climate change threats.

In summary, the comprehensive exploration of increased funding for meteorological services from an accounting perspective underscores the potential for transformative change in combatting climate change. Organisations, governments, and stakeholders can collectively work towards a sustainable future by leveraging accounting methodologies to support climate resilience. The limitations notwithstanding, the study's findings contribute to the ongoing climate change mitigation and adaptation discourse, guiding future research and policy endeavours in this critical area.

CONCLUSIONS

In conclusion, it is evident that the severe repercussions of climate change, exemplified by the destructive aftermath of intense floods and wildfire smoke, demand our urgent attention. These catastrophic weather events highlight the pressing need for swift and collaborative efforts involving individuals, communities, governments, and international bodies. The escalating threat to humanity worldwide is starkly evident through

these alarming occurrences. The existential danger of climate change is already materialising in more frequent and severe disasters, resulting in displacement, economic challenges, and food insecurity. The extensive devastation caused by severe flooding includes destroying homes, infrastructure, and agricultural lands, while rising water levels escalate the risk of coastal erosion and flooding, endangering coastal towns. Additionally, the harmful impacts of wildfire smoke pose grave dangers to air quality, particularly threatening vulnerable groups like the elderly and young children, leading to respiratory issues.

The consequences of climate change extend beyond immediate disruptions, unsettling the delicate equilibrium of our planet's ecosystems and biodiversity. This disruption has far-reaching effects on food production, water availability, and climate stability. Given these unsettling realities, it is imperative to treat climate change seriously and implement decisive measures to alleviate its impacts. Key actions include investing in sustainable practices, transitioning to renewable energy sources, and enhancing climate resilience through increased funding for meteorological services. Simultaneously, fostering awareness and collective action to reduce greenhouse gas emissions and protect natural habitats is crucial in charting a sustainable path for humanity and the planet. Addressing the existential threat of climate change necessitates a united global endeavour, wherein international cooperation and collaboration play pivotal roles in devising effective

climate policies, executing adaptive strategies, and assisting vulnerable communities. By acknowledging the undeniable influence of climate change and taking prompt action, we can strive for a more robust, just, and sustainable world for future generations. The time has come for us to embrace our duty to safeguard our planet and secure a brighter future for humanity.

This study provides fresh insights into challenges, emphasising the role of accounting science in understanding and mitigating climate risks. It contributes recommendations and highlights accounting's importance globally. Amid uncertainties, businesses and governments can use climate-related financial reporting, carbon asset valuation, and risk assessments. Accounting methods promote transparency and sustainability in a changing climate. The study's novelty lies in using accounting as a tool against climate threats, showing its value in navigating complexities. It responds promptly, aiming for change. Proposing increased funding for meteorological services from an accounting perspective enhances climate resilience.

In conclusion, the study's significance emerges as a call to action against climate change. Focusing on accounting science offers promising solutions. Embracing funding from an accounting viewpoint supports informed decision-making, adaptation, and a sustainable future. The insights guide a climate-conscious global community in confronting climate challenges.

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Effect of Corporate Governance Mechanisms on Going Concern Likelihood of Listed Deposit Money Banks in Nigeria

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Abstract. Going concern describes the company's ability to maintain its business continuity. The auditor can issue a going concern audit opinion if the company's condition is doubtful in its business continuity. Based on this premise, this study investigated the effect of corporate governance mechanisms on the going concern likelihood of Deposit Money Banks (DMBs) in Nigeria. The study used an ex post facto research design. The secondary data source was collected from the published annual financial reports of the studied DMBs in Nigeria. The study covered fifteen DMBs in Nigeria, ranging from 2013 to 2021. The data collected were analysed using logistic regression analysis using STATA software. Findings from the research show that board financial expertise and independence negatively and significantly affect the likelihood of DMBs in Nigeria. The study also indicates audit firms' size positively affects going concern likelihood. While audit tenure shows a negative and significant impact on the going concern likelihood of DMBs in Nigeria. Based on the above findings, the study recommends that the authorities ensure that the board has the requisite financial expertise to oversee the financial reporting, risk management, and decision-making of the DMB. The regulatory authorities should also investigate cases of the perceived failure of the board to perform its oversight function and take appropriate disciplinary actions against erring board members.

Keywords: board financial expertise; board independence; audit firm size; audit tenure; going concern.

INTRODUCTION

Going concern is integral to an entity's financial reporting regarding a business's long-term viability and continuity. This assumption necessitates that the company can maintain its existence and will persist in conducting its operations in the foreseeable future. The company's capacity to sustain its operations, commonly called the "going concern" concept, is frequently linked to its managerial proficiency in effectively overseeing its activities to ensure continuity. When a company's financial stability is compromised, shareholders anticipate timely notification of potential financial distress. This notification is often facilitated by an external auditor, an independent entity responsible for issuing statements regarding the company's financial status [1].

The failures of major corporations like Enron Corporation, WorldCom, and Tyco International

in the United States, which boasts some of the best-regulated and most efficient capital markets in the world, have brought to light the urgent need to improve corporate governance systems in both developing countries and countries that have already developed their economies. In addition, several scandals occurred in other countries, such as the one involving Parmalat in Italy in 2003, Bre-X and YBM Magnex in Canada in 1997, Royal Ahold in the Netherlands in 2003, Credit Lyonnais and Vivendi in 1993 and 2002, respectively, Metalgesellschaft in Germany in 1994, and HIH Insurance Ltd. in Australia in 2001, further emphasise the necessity of prioritising effective corporate governance practices worldwide.

In addition, Nigeria has experienced several bank failures as a direct result of insufficient corporate governance practices and other contributing factors. The financial institutions that participated

in the scandal were Afribank, Intercontinental Bank, Oceanic Bank, Equatorial Trust Bank, and Bank PHB. All of these problems have made it more difficult for businesses all over the world to continue operations as usual. It is, therefore, essential to improve financial reporting that is both accurate and objective to adequately value securities and instil confidence in the capital market among investors. Thus, businesses must improve their monitoring and controlling mechanisms to address their financial difficulties, particularly the likelihood of continuing operations.

A considerable body of research has explored the association between the going concern opinion and corporate governance mechanisms, with a predominant emphasis on countries other than Nigeria. The findings of these studies have demonstrated a lack of consensus. Although these studies have yielded valuable insights about the subject matter, it is imperative to acknowledge that their findings may not be readily transferable to the Nigerian context. The present study aims to overcome this constraint by conducting research in a distinct national context, namely Nigeria. The objective is to investigate the association between corporate governance and the issuance of going concern opinions, focusing on listed deposit money banks. The decision to prioritise the Nigerian context holds excellent significance owing to the notable differences in institutional frameworks and litigation landscapes between developing markets, such as Nigeria, and developed markets. The applicability of research outcomes obtained in developed markets may be constrained when applied to the Nigerian context due to variations in cultural norms, legal frameworks, regulatory structures, and market dynamics.

Regarding the empirical studies, the reporting of going concern information in companies' annual reports is still lacking in Nigeria. Hence, this research addresses the literature gap. This study examines corporate governance mechanisms' effect on ongoing concerns in listed deposit money banks in Nigeria. The specific goals are to:

1. Examine the impact of board expertise on ongoing problems in listed deposit money banks in Nigeria.
2. Assess the effect of board independence ongoing concern in listed deposit money banks in Nigeria.

3. Ascertain the audit firm size on ongoing problems in listed deposit money banks in Nigeria.

4. Determine the effect of audit tenure ongoing concern in listed deposit money banks in Nigeria.

In line with the objectives stated above, the following hypotheses were developed:

H₀₁: Board expertise has no significant effect on the going concern of listed DBMs in Nigeria

H₀₂: Board independence has no considerable impact on the going concern of listed DBMs in Nigeria

H₀₃: Audit firm size has no significant effect on the ongoing problem of listed DBMs in Nigeria

H₀₄: Audit tenure has no considerable impact on the going concern of listed DBMs in Nigeria

Literature Review

Concept of Going Concern Likelihood. The probability of a going concern pertains to evaluating a firm's capacity to sustain its operations in the foreseeable future. The consideration of financial reporting is a fundamental component that significantly impacts the formulation of financial statements, encompassing the balance sheet, income statement, and cash flow statement [2].

The going concern assumption is a fundamental tenet in the field of accounting, positing that a business entity will persist in its operations without any foreseeable cessation in the foreseeable future. Hence, when preparing financial statements, accountants and auditors must evaluate the probability of a company's sustained viability as a going concern. Assessing a going concern entails the examination of the company's financial status, operational efficacy, and prospective outlook. Accountants and auditors analyse various economic indicators, including liquidity ratios, solvency ratios, and profitability ratios, to assess the adequacy of a company's financial resources for fulfilling its obligations. Additionally, the evaluators will analyse the organisation's capacity to generate income, effectively manage expenses, mitigate risks, and maintain competitiveness within its respective industries.

Board Financial Expertise and Going Concern. Board expertise can play a critical role in assessing the going concern likelihood of a company. The board of directors oversees the company's management, including its financial performance, risk management, and strategic direction

[3]. The board's collective knowledge, skills, and experience can be valuable in evaluating the company's ability to continue operating as a going concern. Board members with financial expertise, such as certified public accountants (CPAs) or financial analysts, can provide insight into the company's financial statements and financial performance. They can help evaluate the company's liquidity, solvency, and profitability ratios, as well as its economic forecasts and projections [4].

Board members with financial expertise can also help identify potential financial risks to the company's ability to continue as a going concern. They can evaluate the effectiveness of the company's internal controls and risk management policies and procedures and guide on addressing any identified weaknesses. Moreover, board members with financial expertise can help ensure the company complies with accounting standards and regulations related to going concern assessments. For example, they can evaluate the appropriateness of management's assumptions and estimates associated with the going concern assessment and review the adequacy of disclosures related to going concern uncertainties in the financial statements [5].

Board Independence and Going Concern. The assessment of a company's going concern likelihood can be significantly influenced by the degree of board independence. The presence of an autonomous board of directors can offer an impartial evaluation of the financial well-being of the organisation and the probability of its sustained operation. According to [4], independent board members can pose complex inquiries and question the assumptions and estimations made by management concerning assessing ongoing concerns.

Establishing an autonomous governing body can also guarantee the company's adherence to accounting standards and regulations about evaluations of ongoing concerns. An independent board can assess the suitability of management's assumptions and estimations about evaluating the going concern status. Additionally, it can scrutinise the adequacy of the disclosures concerning uncertainties related to the going concern in the financial statements [6]. More, including independent board members, can offer significant expertise and experience in evaluating the economic wellbeing and potential risks associated with the company. Additionally, they can pro-

vide a novel viewpoint and innovative concepts to tackle any identified deficiencies effectively.

Audit Firm Size and Going Concern. The size of an audit firm is a factor that can potentially influence the probability of an auditor issuing a going concern opinion. The scale of the audit firm may influence the decision, as larger firms possess more excellent resources and expertise to evaluate the company's financial state comprehensively. Numerous empirical investigations have been undertaken to examine the correlation between the size of audit firms and the issuance of going concern opinions. According to [3], it was observed that audit firms of more significant size exhibited a reduced propensity to issue a going concern opinion. This observation implies that such firms may possess enhanced resources and expertise, enabling them to evaluate the organisation's financial state comprehensively. The research additionally revealed that the magnitude of a client's business, as measured by the size of the audit firm, played a substantial role in determining the probability of receiving a going concern opinion, with smaller clients exhibiting a higher likelihood of acquiring such an opinion. It was discovered that there exists a positive correlation between the size of an audit firm and the probability of issuing a going concern opinion. This finding implies that larger audit firms tend to exercise greater prudence when evaluating the financial state of a company. Additionally, the research revealed that the impact of audit firm size on the issuance of going concern opinions was more prominent in instances where the client exhibited a less robust financial standing. This implies that the magnitude of the audit firm's size could hold significant relevance in evaluating companies that face a heightened likelihood of insolvency.

Audit Tenure and Going Concern. The duration of an auditor's tenure is an additional variable that can influence the probability of an auditor issuing a going concern opinion. Audit tenure is a term used to describe the duration of the professional relationship between an audit firm and its client. As the time of audit tenure extends, auditors may develop a heightened sense of familiarity with the client, potentially leading to an increased likelihood of overlooking potential financial challenges. This may decrease the probability of issuing a going concern opinion when justified. Numerous empirical investigations have been undertaken to examine the correlation between the duration of audit tenure and the issuance of go-

ing concern opinions. In a study conducted by [3], it was discovered that there exists a positive correlation between audit tenure and the probability of issuing a going concern opinion. This implies that as the duration of audit tenure increases, auditors may be more inclined to give a going concern opinion.

Additionally, the research revealed that the impact of audit tenure on the issuance of going concern opinions was more prominent in instances where the client exhibited a less robust financial standing. This implies that the duration of audit tenure could be particularly significant when evaluating companies at a heightened risk of insolvency. The probability of an audit engagement resulting in a going concern opinion was more important during the initial year than in subsequent years. The study posits that auditors may exhibit higher prudence in their evaluations during the initial year of the engagement. As they gain a deeper understanding of the client and its financial standing, there is a tendency for auditors to display a decreased likelihood of issuing a going concern opinion in subsequent years.

Theoretical Framework

Agency theory posits that a distinct division exists between ownership and control within publicly traded corporations, thereby creating a potential conflict of interest between managers and shareholders. Within this particular framework, the primary duty of the board of directors is to advocate for the concerns and welfare of shareholders while ensuring that managers act in a manner that aligns with the shareholders' best interests [7].

The presence of board expertise and independence are crucial attributes of a board that can significantly influence the quality of financial reporting and the probability of a going concern opinion being issued. A committee comprising individuals with advanced financial expertise may possess enhanced capabilities to recognise potential economic challenges and engage in more rigorous inquiry with management, thereby improving the overall financial reporting standard. Similarly, a board that exhibits greater independence is less susceptible to the influence of control and may demonstrate a greater propensity to scrutinise management's claims regarding the organisation's financial state.

Factors related to audit quality, such as the size of the audit firm and the length of the audit tenure, can also influence the probability of issuing a going concern opinion. Audit firms of a larger scale possess more excellent resources and specialised knowledge, enabling them to perform a more comprehensive audit. Consequently, this enhanced audit process yields a higher calibre audit and a more precise evaluation of the company's financial standing. Nevertheless, it has been previously discussed by [8] that extended audit tenure has the potential to result in auditor complacency.

The utilisation of agency theory in this context implies that board characteristics and audit quality factors can serve as mechanisms to align the interests of managers and shareholders effectively. Boards characterised by enhanced financial expertise and independence play a crucial role in safeguarding shareholders' interests by ensuring that management acts in their best interest. Additionally, high-quality audits strengthen the dependability of financial reporting, thereby shielding shareholders from potential financial losses.

Examining board characteristics and audit quality factors is essential in the context of listed deposit money banks in Nigeria due to the pivotal role these banks hold in the Nigerian economy. It is crucial to comprehend the influence of these factors on the probability of a going concern opinion being issued. By analysing the factors that influence the likelihood of a going concern opinion being issued within this particular context, regulators and stakeholders can enhance their comprehension of the financial reporting quality within these banks. Consequently, they can implement measures to guarantee that these institutions operate securely and prudently.

METHODOLOGY

The study adopted 'an ex-post facto research design. The study population comprises all 25 listed Deposit Money Banks (DMBs) in Nigeria as of 31st December 2021. This study used a secondary source of data collection.

The study has selected a specific population of banks for analysis, and the researchers have employed a censoring sampling technique to suit the chosen research model. Here is an expansion of the provided information:

1. Dropping Banks Not Listed as of 2012.

2. Eliminating Banks No Longer in Existence or Delisted.
3. Eliminating Banks with Insufficient Data Records.

After applying these filters, ten banks were eliminated, and the remaining 15 met all the criteria. The data was collected from the annual reports and bank accounts for nine years (2013 to 2021). The data analysis technique used in this study was logistic regression. In addition to using the Log-likelihood value, the model feasibility test in this study also uses Hosmer and Lemeshow's goodness of fit test.

Model Specification:

$$GCL = \beta_0 + \beta_1 BEXP + \beta_2 BI + \beta_3 AFS + \beta_4 ATEN + \beta_5 LEV + \varepsilon$$

where GCL – Going Concern Likelihood; β_0 – Intercept; β_1 to β_5 – coefficient of slope or regression coefficient; BEXP – Board Expertise; BI – board independence; AFS – Audit Firm Size; ATEN – Audit Tenure; LEV – Leverage; ε – error term.

Table 1 – Variable Measurement

Variable	Measurement
Going Concern Likelihood – Dependent variable	Score one if a company obtained a modified audit opinion and 0 if otherwise.
Board Expertise – Independent variable	Board expertise in the board was measured by the percentage of total members of the board with accounting and finance knowledge.
Board independence – Independent variable	A dummy variable that equals one if independent directors are present on the board and 0 otherwise
Audit Firm Size – Independent variable	takes a value of 1 if an audit firm is a Big Four or 0 if a non-big Four.
Audit Tenure – Independent variable	Auditors Tenure is computed as "1" for companies that hired external auditors that stayed for ten years and "0" for auditors with less than ten years of engagement.
Leverage (control variable)	total debt divided by the total equity

RESULTS AND DISCUSSIONS

Table 2 presents the statistical summary of the going concern likelihood of Deposit Money Banks (DMBs) in Nigeria.

Table 2 – Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
GCL	.6218487	.4869761	0	1
BEXP	.2454989	.1280962	.0769231	.5
BI	.3174539	.1392245	.0909091	.75
AFS	.6416667	.4815213	0	1
ATEN	.8907563	.3132637	0	1
LEV	.472408	.1903619	.0895	.928887

The mean value of the going concern likelihood for the DMBs is 0.6218487, indicating that, on average, the banks have a higher probability of continuing their operations in the future. The standard deviation of the going concern likelihood is 0.4869761, which indicates that the data points are spread out from the mean. The minimum value of the going concern likelihood is 0, which means that some DMBs have a very low probability of continuing their operations in the future. The maximum value of the going concern likelihood is 1, which means that some DMBs have a very high chance of continuing their operations in the future.

The mean value of the board financial expertise for the DMBs is 0.2454989, indicating that, on average, the banks' boards of directors have some financial knowledge. The board's financial expertise standard deviation is 0.1280962, which suggests that the data points are relatively close to the mean. The minimum value of the board's financial expertise is 0.0769231, which means that some DMBs have a board with relatively low financial knowledge. The maximum value of the board's financial expertise is 0.5, which means that some DMBs have a board with a relatively high financial understanding. Table 2 also presents the statistical summary of the board independence of Deposit Money Banks (DMBs) in Nigeria. The mean value of the board independence for the DMBs is 0.3174539, indicating that, on average, the banks' boards of directors have some level of independence. The standard deviation of the board independence is 0.1392245, which suggests that the data points are relatively spread out from the mean. The minimum value of board independence is 0.0909091, which means that some DMBs have a relatively low level of

board independence. The maximum value of board independence is 0.75, which means that some DMBs have a relatively high level of board independence. The mean value of the AFS for the DMBs is 0.6416667, indicating that, on average, the banks engage rather large audit firms. The standard deviation of the AFS is 0.4815213, which suggests that the data points are spread out from the mean. The minimum value of the AFS is 0, which means that some DMBs engage small audit firms. The maximum value of the AFS is 1, which means that some DMBs hire giant audit firms.

The mean value of the audit tenure for the DMBs is 0.8907563, indicating that, on average, the banks have engaged the same audit firm for a relatively long period. The standard deviation of the audit tenure is 0.3132637, which indicates that the data points are spread out from the mean. The minimum value of the audit tenure is 0, meaning some DMBs frequently engage new audit firms. The maximum value of the audit tenure is 1, meaning that some DMBs hire the same audit firm for a very long time.

The mean value of the leverage (LEV) for the DMBs is 0.472408, indicating that, on average, the banks have financed their assets with moderate debt. The standard deviation of the leverage is 0.1903619, which suggests that the data points are relatively spread out from the mean. The minimum value of the leverage is 0.0895, which means that some DMBs have a relatively low level of debt financing. The maximum value of the leverage is 0.928887, which means that some DMBs have a relatively high level of debt financing.

Table 3 shows that there is a negative relationship between the going concern likelihood and the board expertise (exp) and board independence (BI) of Deposit Money Banks (DMBs) in Nigeria.

Table 3 – Correlation Result

	GCL	BEXP	BI	AFS	AT	LEV
GCL	1.0000					
BEXP	-0.3666	1.0000				
BI	-0.3316	0.2071	1.0000			
AFS	0.0072	-0.2208	-0.0142	1.0000		
AT	0.2121	0.0088	-0.0813	-0.0115	1.0000	
LEV	-0.1962	0.0645	0.0247	0.4689	0.2029	1.0000

The correlation coefficient between going concern likelihood and board expertise is -0.3666, while the correlation coefficient between going concern likelihood and board independence is -0.3316. A negative correlation means that as the value of one variable (in this case, board expertise and board independence) increases, the value of the other variable (going concern likelihood) decreases. In other words, banks with higher levels of board expertise and independence are less likely to have going concern issues. The negative relationship between going concern likelihood and board expertise and freedom is not surprising, as a competent and independent board is expected to provide adequate oversight and governance, which can help prevent financial distress and going concern problems. Therefore, the results from Table 3 suggest that DMBs in Nigeria with boards with higher levels of expertise and independence are less likely to have ongoing concern issues.

The study also shows a positive relationship between going concern likelihood and audit firm size (AFS) and audit tenure, as indicated by the correlation coefficients of 0.0072 and 0.2121, respectively. A positive correlation means that as the value of one variable (in this case, audit firm size and audit tenure) increases, the value of the other variable (going concern likelihood) also increases. This suggests that banks that have engaged larger audit firms or have had longer audit tenure are more likely to have going concern issues. The positive relationship between going concern likelihood and audit firm size and term could be due to various reasons. For instance, larger audit firms may have more clients and, therefore, may be unable to provide each client with the same level of attention and quality of service. Similarly, longer audit tenure could lead to complacency on the part of the auditor, leading to potential audit failures and ongoing concern issues.

A negative correlation coefficient of -0.1962 between going concern likelihood and financial leverage in Table 2 suggests that as economic leverage increases, the possibility of a company being a going concern decreases. In other words, these two variables have an inverse relationship - when one goes up, the other goes down. This negative relationship between financial leverage and going concern likelihood may be because higher levels of financial leverage can increase a company's financial risk and make it more vulnerable to financial distress or bankruptcy. In

contrast, lower levels of financial leverage may indicate a stronger financial position, increasing the likelihood that the company will continue to operate as a going concern.

Table 4 – Hosmer and Lemeshow's goodness-of-fit.

Step	Chi ²	Sig
1	Hosmer-Lemeshow chi ² (8) = 9.33	Prob > chi ² = 0.3155

Hosmer and Lemeshow's test statistic is 9.33 with a significance probability of 0.3155, and they concluded that the model had met the data adequacy (fit) because the null hypothesis was accepted.

Table 5 shows that the Pseudo R² is 0.2422, which means that 24% of the variation in GCL of DMBs in Nigeria is explained jointly by the independent variables captured in the model. The table also shows that the model is fitted, as evidenced by the LR chi²(5) of 31 (as indicated by the P-value of 0.00).

Table 5 – Summary of Logistic Regression Analysis

	Coeffi	Std. Err.	z	P> z
BEXP	-5.874213	2.13492	-2.75	0.006
BI	-5.107748	2.064089	-2.47	0.013
AFS	.3680248	.5993474	0.61	0.539
AT	2.008075	.8144384	2.47	0.014
LEV	-3.629658	1.597867	-2.27	0.023
Pseudo R ²	0.2422			
LR chi ² (5)	31.21			
Prob > chi ²	0.0000			

Table 5 shows that board financial expertise significantly affects the going concern likelihood (GCL) of listed DMBs in Nigeria as indicated by the coefficient of -5.874213 with a P-value of 0.006, which is statistically insignificant at a 5% significance level. The negative coefficient for board financial expertise suggests that companies with more board financial expertise are associated with lower GCL, which may be because financial experts on the board are more likely to identify potential financial risks and take measures to mitigate them.

The coefficient of -5.107748 suggests that board independence hurts the going concern likelihood (GCL) of listed Deposit Money Banks (DMBs) in Nigeria. This means that as the level of board in-

dependence increases, the GCL of the listed DMBs decreases. Furthermore, the p-value associated with the coefficient is 0.013, less than the 5% level of significance commonly used in hypothesis testing. This indicates that the negative relationship between board independence and GCL is statistically significant at the 5% significance level. These findings suggest that having a higher level of board independence can lead to a lower likelihood of listed DMBs being a going concern. This may be because independent board members are less likely to be influenced by management and can provide a more objective assessment of the company's financial position and risks.

The coefficient of .3680248 suggests that audit firm size, explicitly being a member of the Big 4, positively affects the going concern likelihood (GCL) of listed Deposit Money Banks (DMBs) in Nigeria. However, the p-value associated with the coefficient is 0.539, more significant than the 5% level of significance commonly used in hypothesis testing. This indicates that the relationship between audit firm size and GCL is statistically insignificant at the 5% significance level. In other words, insufficient evidence suggests that being audited by a Big Four firm significantly impacts the likelihood of a listed DMB being a going concern in Nigeria.

The coefficient of 2.008075 suggests that audit tenure positively affects the going concern likelihood (GCL) of listed Deposit Money Banks (DMBs) in Nigeria. This means that as the length of the audit tenure increases, the GCL of the listed DMBs also increases. Furthermore, the p-value associated with the coefficient is 0.014, less than the 5% level of significance commonly used in hypothesis testing. This indicates that the positive relationship between audit tenure and GCL is statistically significant at the 5% significance level. These findings suggest that longer audit tenures may be associated with a higher likelihood of listed DMBs being a going concern. This may be because long-term auditors may become too familiar with their clients and less independent in assessing the company's financial position and risks.

The analysis results indicate that financial leverage significantly affects the going concern likelihood (GCL) of listed Deposit Money Banks (DMBs) in Nigeria. Specifically, the coefficient of -3.629658 suggests that an increase in financial leverage is associated with a decrease in the GCL

of the listed DMBs. The statistical significance of this relationship is supported by the associated p-value of 0.023, which is less than the commonly used threshold of 5% for statistical significance. Therefore, it can be concluded that the negative relationship between financial leverage and GCL is unlikely to have occurred by chance. These findings suggest that higher levels of financial leverage may increase the likelihood of a listed DMB experiencing financial distress, decreasing the possibility of it being a going concern. This may be because high levels of financial leverage increase the company's risk of defaulting on its debt obligations, leading to financial difficulties and instability.

CONCLUSIONS

The findings revealed that board financial expertise and independence significantly affect the likelihood of DMBs in Nigeria. They conclude that companies with boards with solid financial knowledge and freedom are likelier to avoid concern issues, which can benefit the company and its stakeholders. Audit firm size also appears to have an insignificant effect on ongoing concern. This suggests that the size of the audit firm does not significantly impact a company's likelihood of facing ongoing concern issues. At the same time, audit tenure substantially affects the probability of DMBs in Nigeria. The study concludes that the length of time an audit firm has been working with a company may impact the company's

chance of facing ongoing concern issues. Following this study's findings and conclusion, the study recommends that.

The authorities should ensure that the board has the requisite financial expertise to oversee the financial reporting, risk management, and financial decision-making of the DMB. The regulatory authorities should also investigate cases of perceived failure of the board to perform its oversight function and take appropriate disciplinary actions against erring board members.

DMBs should enhance the independence of their board by appointing independent directors who are not affiliated with the DMB or its management.

The regulatory authorities should enhance their oversight function by monitoring the quality of audits conducted by audit firms. The authorities should ensure that auditors adhere to ethical standards and that their opinions are unbiased. The regulatory authorities should also investigate cases of perceived audit failure and take appropriate disciplinary actions against erring auditors.

The regulatory authorities in Nigeria should review mandatory audit rotation for DMBs. This will limit the years that an audit firm can serve as the external auditor of a DMB. By introducing mandatory audit rotation, the independence of external auditors will be enhanced, and the risk of familiarity threat will be reduced.

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The Influence of Instafamous and Content Marketing on General Attitude Toward Local Brands and Interest in Buying Cosmetic Products

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Abstract. The growth of local cosmetics in Indonesia has increased rapidly due to the increasing public interest in local cosmetic products that provide products according to the skin colour of Indonesians. Local cosmetic companies must compete with fellow local brands and brands from other countries to do marketing effectively. One is using Instagram social media to collaborate with Instafamous or create Instagram content. This study aims to determine the influence of Instafamous and Content Marketing on Interest in buying local cosmetic products mediated by General Attitude Toward Local Brands (GATLB). This type of quantitative research uses non-probability sampling methods and purposive sampling techniques on 100 respondents. Data was collected with online surveys and analyzed with SEM PLS through the SmartPLS 3.9.9 application. The results of this study show that Instafamous and Content Marketing hurt buying interest. While GATLB as a mediating variable plays a full role or complete mediation, Instafamous variables and Content marketing do not directly influence buying stake but have an indirect influence through GATLB as a mediation variable.

Keywords: Instafamous; Content Marketing; GATLB; Buying intention.

INTRODUCTION

The era of globalization requires companies to be more creative in marketing their products. This era combines automation technology, namely the Internet of Things (IoT), cloud computing and cognitive computing [1]. Social media is one of the most effective forms of marketing because it can quickly provide awareness of a brand and be passed on from one user to another [2]. One social media platform often used is Instagram, an application-based mobile phone platform that can share photos and videos with artistic visuals and provide social networking services [3].

Cosmetic companies also use social media to promote and compete in the industrial world [4]. Given the rapid growth of the cosmetic industry, data from the Ministry of Industry in 2020 showed that the local cosmetic industry grew 9.32% from the previous year. Many new local brands have emerged in Indonesia that have only been established less than ten years ago.

Although local brands show positive growth, people tend to have inferior perceptions of local brands [5]. In addition, according to research [6],

young consumers in Indonesia crave foreign brands due to their globalization orientation, so they have favourable emotions towards foreign brands. This makes local cosmetic companies have to be more active in marketing their products, one of which is by collaborating using endorsement methods, namely including messages from brands and/or creations in their uploads by giving rewards or payments to Instafamous [7, 8].

Instafamous can influence consumer attitudes towards a brand. An Instafamous with good credibility can become an opinion leader who can influence the public's mindset [9]. In addition, Instafamous can also affect consumers' buying interest in cosmetic products with their ability to connect with their followers [10].

In addition to the influence of Instafamous, content marketing also has a vital role in digital marketing. Content marketing is creating a lot of content and good content and, most importantly, knowing what the audience wants [11]. Content marketing can affect brand attitudes, where consumers form mindsets because of the encouragement of product information provided by

brands. Positive attitudes from consumers can affect their interest in buying these products [12].

Research conducted by [13] shows a significant relationship between Instafamous and brand attitude, where expertise and trustworthiness influence the formation of brand attitude and brand image. Other studies conducted [14, 15, 16] show that there is a significant direct relationship between Instafamous and buying interest, but research conducted [15] shows that Instafamous credibility does not affect buying interest directly but affects consumers' positive attitudes (Brand attitude).

Research conducted by [17] found that content marketing influences buying interest, one of which is controlled by attitude. This is different from research conducted, where content marketing does not significantly affect buying interest.

However, there are still inconsistencies in the research results conducted by previous researchers, so further research needs to be carried out. Besides, there has been no research examining the influence of Instafamous and Content Marketing on consumer interest in buying local cosmetic products. Digital marketing strategies through Instafamous and Content Marketing can form GATLB that can accommodate consumer behaviour where the more positive consumer attitudes can affect purchase interest.

METHODS

This study uses a quantitative approach using non-probability sampling and purposive sampling techniques, where it is limited to certain types of people who have the following criteria:

1. Women who have never used local cosmetic products (BLP, SASC, ESQA, Goban, Rollover Reaction).
2. Know and have seen the promotion of local cosmetic products carried out by Instafamous, which has more than 1 million followers (Tasya Farasya, Rachel Goddard, Abel Cantika, Nanda Arsyinta, Indira Kalista).
3. Know and have seen Content Marketing of local cosmetic products through local cosmetic brand Instagram accounts (BLP, SASC, ESQA, Goban, Rollover Reaction).

In research using SEM (Structural Equation Modelling) one method of determining the sample size for SEM is multiplying 5-10 times the num-

ber of indicators of the entire variable. This study has 17 question items, so the sample size required is at least $16 \times 5 = 85$ to $17 \times 10 = 170$ respondents. So, the researcher, in this case, used 100 female respondents from throughout Indonesia. The sample of Instafamous is limited to 5 Instafamous with more than 1 million followers, namely (Tasya Farasya, Rachel Goddard, Abel Cantika, Nanda Arsyinta, and Indira Kalista) and local cosmetic brands that have been established for less than the last 10 years (Rollover Reaction, Goban, Sasc, BLP, Esqa). The selection of local brands looks at the age of local brands that have not reached 10 years and are actively creating content on Instagram.

The data collection technique in this study was questionnaires with a Likert scale of 1-7, each of which had the respondents' opinions. Data was collected through an online survey with questionnaires in Google Forms and disseminated through social media networks WhatsApp and Instagram Groups. It was cut off after reaching 100 respondents.

The questionnaire consists of 2 parts. The first part contains the respondent's identity consisting of full name, area of domicile, gender, occupation, age, and education. At the same time, the second part contains statement items, namely 7 statement items for Instafamous variables, 6 for Content Marketing variables, 6 for GATLB variables and 4 for purchase interest variables. The validity test was conducted with SPSS program version 28.0.1.1 with a sample of 50 outside the research respondents. Test the hypothesis using SEM-PLS Analysis using the Smart PLS application version 3.2.9, which consists of two sub-models, namely the measurement model or the so-called outer model and the structural model, often called the inner model.

Based on the hypothesis formulation above, a research conceptual framework can be assembled as follows.

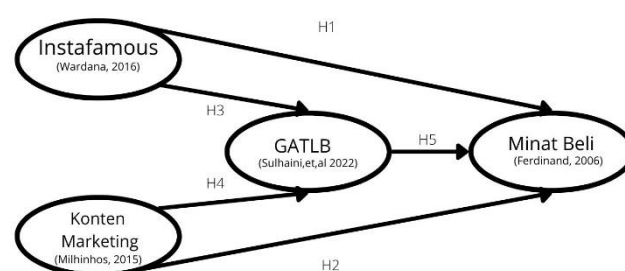


Figure 1 – Conceptual Framework

RESULTS AND DISCUSSION

Characteristics of Respondent. The characteristics of respondents in this study were as many as 100 samples. The majority of respondents have an S1/bachelor degree background of 73%. Most respondents are young, namely 20-30 years old, with 99 people (99%).

Measurement Model / Outer Model. Measurement model or outer model was carried out on all variables involved in this study, namely independent variables or exogenous variables, namely the quality of Instagram content against dependent or endogenous variables. The outer model is measured by convergent validity, discriminant validity, and internal consistency reliability. This model is called a reflective measurement model because it evaluates the values of loading factor, composite reliability, Cronbach's alpha, AVE, and discriminant validity. The rule of thumb for the loading factor commonly used to measure convergent validity is ≥ 0.7 with an average variance extracted (AVE) value of ≥ 0.5 [18]. If an outer loading value below 0.7 is found, the researcher should carefully examine the effect of item deletion on composite reliability and construct content validity.

Generally, indicators with outer loading between 0.40 and 0.70 should be considered to be removed from the scale only when removing these indicators leads to increased composite reliability [18]. The following are the results of the outer loading analysis phase II (re-estimate) after eliminating one by one the indicators whose external loading value is below 0.7 as follows.

Table 1 – Correlation value (outer loading) and AVE

No	Instafamous (X1)	Outer Loading
1.	Instafamous that I like is popular	0.774
2.	Instafamous that I like is interesting	0.863
3.	Instafamous that I like, provides valid information	0.741
4.	Instafamous that I like has product knowledge.	0.771
No.	Content Marketing (X2)	Outer Loading
1.	The content of local cosmetic products that I like has accurate information	0.800
2.	The content of local cosmetic products that I like has relevant information	0.860
3.	The content of local cosmetic products that I like is valuable	0.930
4.	The content of local cosmetic products	0.798

	that I like is easy to understand	
5.	The content of local cosmetic products that I like is straightforward to find	0.848
6.	The content of local cosmetic products that I like is consistent.	0.897
No	GATLB (Z)	Outer Loading
1.	I feel good after seeing local cosmetics on Instagram	0.921
2.	I feel good after seeing local cosmetics on Instagram	0.869
3.	I liked a local cosmetics post on Instagram	0.827
4.	I'm interested in seeing local cosmetics posts on Instagram	0.844
5.	I feel satisfied after seeing local cosmetics posts on Instagram	0.761
6.	I have a favorable impression after seeing local cosmetics post on Instagram.	0.864
No.	Buying Interest (Y)	Outer Loading
1.	I want to buy a local cosmetic product that I saw on Instagram	0.842
2.	I want to recommend local cosmetic products I see on Instagram to others	0.875
3.	I want to replace the cosmetic products I use with local cosmetics that I see on Instagram to others	0.715
4.	I need to find information about local cosmetic products that I see on Instagram	0.800

From the reliability test results, Cronbach's Alpha (α) value on the four variables, including Instafamous quality, content marketing, GATLB, and Purchase interest, was 0.760 respectively; 0.948; 0.943; 0.798 so that all variables are declared reliable because the value is more than 0.7 with the highest reliability value in the variable X2 (Content Marketing).

Structural Model / Inner Model. The structural model is tested by looking at the R-Square value, which is a goodness-fit-model test. The R-squared value describes how much the independent variable can explain the dependent variable. From the output of the R-Square value, it can be concluded that the model of the influence of the independent variable on the dependent variable has an R-Square of 0.363. This value shows that Instafamous and Content Marketing construct variables can explain the buying interest construct variable by 36.3%. In comparison, the other 63.7% is influenced by other factors not included in this study variable.

The next test is the estimation of path coefficients, which is carried out to see the significance of the influence of the independent variable on the dependent variable by looking at the value of the parameter coefficient and the significance value of t-statistics. This test is carried out by calculating using PLS Bootstrapping according to the model below (Figure 2).

It can be seen from the statistical t- value between the independent and dependent variables to assess the significance of predictive models in structural model testing. According to [18], the significance value of level 5% must meet the t-value of 1.96. The t-statistic value can be seen in the Path Coefficient table in the Smart PLS output according to Table 2.

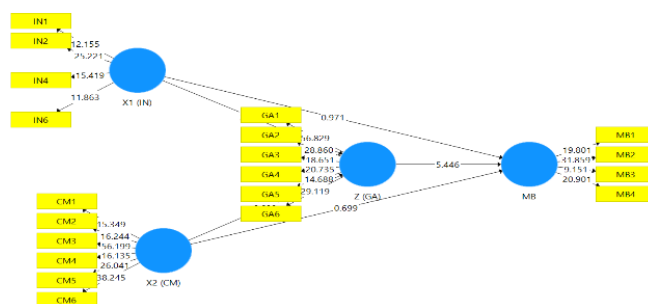


Figure 2 – Model of Path Coefficient with PLS Bootstrapping

Table 2 – Results

Influence Between Variables	t-Statistic	Weight significance	P-Values	Sig 5%	Conclusion
Instafamous on buying interest	0,971	<1,96	0,332	>0,05	Insignificant
Content Marketing on buying interest	0,699	<1,96	0,485	>0,05	Insignificant
Instafamous on GATLB	2,347	>1,96	0,019	< 0,05	Sig.
Content Marketing on GATLB	6,609	>1,96	0,000	> 0,05	Sig.
GATLB on buying interest	5,446	>1,96	0,000	> 0,05	Sig.

Based on the table above, it can be concluded that the H1 and H2 hypotheses are rejected because they have t statistics values of less than 1.96 and P-Values of more than 0.05, while H3, H4 and H5 are acceptable because they have t-statistics values of more than 1.96 and P-Values less than 0.05.

Evaluating The Effect of Mediation. Testing of mediating effects in analysis using PLS first, testing the influence of exogenous variables on endogenous variables and significance if the t-statistic value >1.96 (Table 3). In subsequent tests, it looked at the effect of mediating variables on endogenous variables significant at t-statistics >1.96 (Table 4).

Table 3 – Mediating Effect

Influence Between Variables	t Statistic	Weight significance	P-Values	Sig 5%	Conclusion
Instafamous on buying interest	0,971	<1,96	0,332	>0,05	Insignificant
Content Marketing on buying interest	0,699	<1,96	0,485	>0,05	Insignificant

Table 4 – Mediating effect on endogenous variables

Influence Between Variables	t-Statistic	weight significance	P-Values	Sig 5%	Conclusion
IN → GATLB → MB	2,102	>1,96	0,036	<0,05	Sig
CM → GATLB → MB	4,325	>1,96	0,000	<0,05	Sig

Based on the comparison between the path coefficients of exogenous and endogenous variables compared to the relationship between exogenous and endogenous variables through mediating variables, it can be concluded that GATLB fully mediates the influence of Instafamous and Con-

tent Marketing on buying interest with a statistical t value of >1.96 and p-values of <0.05.

The Effect of Instafamous on Buying Interest in Local Cosmetic Products. The results of this study show that Instafamous does not significantly in-

fluence Buying interest in local cosmetic products directly. Based on the results of the research description on instafamous variables, buying interest has a negative and insignificant relationship direction. Based on the research results on the instafamous variable, the lowest value was found in the variables 'trustworthiness' and 'expertise' which shows that instafamous is unable to provide honest reviews about the products they post because they have collaborated with brands to promote their products. Product reviews are given by instafamous solely because of cooperation, not as honest reviews as users. They only provide positive information and superior things from a product so that their assessment becomes subjective.

In addition, the variable 'expertise' is considered not to affect buying interest because Instafamous is deemed to have no expertise. Instafamous, in collaboration with the brand, describes the brand's direction about what will be conveyed about the product. Still, they do not have basic knowledge about cosmetics, such as the content of substances in cosmetics owned by aesthetic specialists or techniques using makeup owned by makeup artists. So, if consumers want to get information about cosmetics, then they should not follow instafamous but makeup artists and aesthetic doctors on Instagram. Instagram users who follow instafamous Instagram do not directly aim to buy the products used by instafamous. Still, they follow instafamous because they like the appearance and interaction of instafamous with their followers. This can be seen from not all followers who follow instafamous in this study are women, but some male followers have no interest in buying cosmetic products. So, even though Instafamous can act as a promotional medium through social media, the information provided does not necessarily increase consumer buying interest.

The Effect of Content Marketing on Buying Interest in Local Cosmetic Products. The results of this study show that Content Marketing does not significantly influence the Buying Interest in local cosmetic products directly. Content marketing is defined as a marketing strategy that focuses on creating and disseminating local cosmetic content that has value, is relevant and consistent to attract and nurture audiences to encourage consumer attitudes towards cosmetic products.

This study shows that most respondents aged 20-30 have followed instafamous or seen content

on local cosmetic accounts. This means the content posted on Instagram does not affect or reach all age levels. Based on the 'easy to find' content category, marketing strategies through the Instagram platform only go to specific age groups. People over 30 years old tend to use other social media platforms so that they do not easily find information shared on Instagram, and they are also unable to increase interest in buying products.

The Effect of Instafamous on GATLB on Local Cosmetic Products. Instafamous has a positive and significant influence on GATLB local cosmetic products directly. The results of descriptive research on GATLB variables have been excellent, and respondents perceived very high attitudes. This means that instafamous has a significant influence on the positive attitude of consumers.

Instafamous itself is not a celebrity where they can give a sense of wanting to imitate from their followers to imitate what is worn or use what instafamous recommends [13]. This can affect the positive attitude of consumers because instafamous who are famous through Instagram for sharing information about cosmetic products are more trustworthy than celebrities who work with certain brands to advertise their products. The credibility of instafamous can strengthen brand credibility, which will lead to positive behaviour in the form of considerable buying interest [19].

In the instafamous variable, the Popularity variable has the highest value. Popularity is related to the number of fans Instafamous owns and how often Instafamous interacts with followers through Instagram. Instagram is not the same as celebrities who play a role in art and entertainment, so Instagram has a more intense time interacting with its followers. This makes instafamous have closer engagement with their followers and creates a better consumer attitude towards the instafamous they follow.

The Effect of Content Marketing on GATLB on Local Cosmetic Products. Content marketing positively and significantly influences GATLB's local cosmetic products directly. The results of descriptive research on GATLB variables have been excellent, and very high attitudes were perceived by respondents. This means that content marketing has a significant influence on the positive attitude of consumers. This is in line with research conducted by [20], which found that content marketing influences brand attitude, where good

content marketing allows positive consumer attitudes towards brands to be more easily formed.

Content marketing affects the perception and image of the product through the information provided so that users can get an idea of the product even though they have never used it. If the information displayed is good, the better the consumer's attitude towards the product.

The Instagram social media platform itself has a feature to promote content from social media accounts to other users looking for similar accounts, making it easier for users to get information about products. Just as the user follows and likes one of the local cosmetic product accounts, the user will be recommended content similar to the account they want. Marketing content that gets a lot of likes and views on Instagram can become viral. The more viral the content, the more popular the product offered.

The Effect of GATLB on Buying Interest. The results of this study show that GATLB has a positive and significant influence on GATLB local cosmetic products directly. The results of descriptive research on GATLB variables have been excellent, and very high attitudes were perceived by respondents. This means that GATLB's attitude significantly influences consumers' buying interest in local cosmetic products.

Local brands of cosmetic products in Indonesia are more in demand because consumers feel the products are more suitable for their needs, and they have confidence that the products are made with halal ingredients indicated by halal labels. Consumers' trust in the brand gives them a good attitude and vice versa. The development of local cosmetic products in Indonesia and the improvement of the quality of local cosmetic products proves that local cosmetics get positive attention from the community, making them interested in buying local cosmetic products.

According to research [21], consumers in Indonesia show strong local brand consciousness and offer positive emotional value to create a positive consumer perception of local brands. So, the more positive the consumer's attitude towards the brand, the greater the influence on buying interest. This is in line with research [22], which shows that a positive attitude of consumers can encourage buying welfare.

The effect of GATLB as a mediating variable between Instafamous and Content Marketing on buying interest. This study shows an insignificant di-

rect relationship between Instafamous and Content Marketing to purchase interest. Still, the indirect relationship between Instafamous and content marketing mediated by GATLB is significant, so GATLB fully mediates the relationship between Instafamous and content marketing to purchase interest.

Consumer attitudes towards brands can be used to predict consumer purchase behaviour to increase buying interest [23]. According to consumer behaviour theory, stimuli can influence individuals through perception, i.e., how consumers perceive and attach meaning to all information input. In this case, Instafamous can act as an opinion leader who can provide information to influence consumer attitudes towards local brands. Instafamous can build a positive attitude of consumers compared to ordinary celebrities because they can interact better with their followers on social media. This makes the information shared by instafamous more informative and exciting to follow. Therefore, selecting appropriate instafamous is important for companies to increase consumers' positive attitudes towards local cosmetic products to encourage consumers' buying desires.

Content Marketing also plays a role in providing perceptions to consumers about a product. The better the marketing content used, the better consumer perception. Local cosmetic products also have value in their products, made by the nation's children, so that they can make better consumer attitudes towards these products and encourage consumer buying interest. This is in line with research conducted by [17], where the relationship between social media use (social media content, activist and brand content) and buying interest is mediated by consumer attitudes, where positive consumer attitudes can increase consumer purchase interest.

CONCLUSIONS

Positive consumer attitudes have an essential role in increasing consumer buying interest, so local cosmetic companies should choose the right instafamous to cause positive consumer attitudes towards local cosmetic brands to support purchase interest. Based on the results of this study, the variables with the lowest value are trustworthiness and expertise, so it needs to be the attention of local cosmetic companies to find instafamous experts in the cosmetics field who can pro-

vide detailed and honest reviews of local cosmetic products.

Local cosmetic companies also need to consistently create content containing accurate and relevant information about local cosmetic products. In addition, it is recommended that local cosmetic companies create marketing content about their products that can strengthen consumers' positive attitudes towards local products, such as using hashtags, invitations to use local cosmetic products, and emphasizing product quality that can compete with foreign brands and choices according to the needs of Indonesian consumers.

Theoretically, this study formulates a conceptual framework to predict consumer behaviour towards consumer buying interest in local cosmetic products. In particular, this study explores the causal relationship between the influence of instafamous on the interest in buying local cosmetic products, the effect of content marketing on the interest in buying local cosmetic products (response), GATLB as a mediating variable of this study can be known if Instafamous does not have

a direct and not significant effect on buying interest as well as content marketing on purchase good.

Based on the results of this study, it was found that both Instafamous and Content Marketing on Instagram do not necessarily affect buying interest but must form a positive attitude of consumers. This is in line with the Theory of Planned Behavior, where consumer attitudes can predict consumer behaviour and internal and external factors that become stimuli in forming consumer attitudes.

This research also supports the Stimulus-Organism-Response theory, which is formed through stimuli in the form of the role of Instagram social media and Instagram content of local cosmetic products in providing product information to cause consumer perceptions and evaluations of regional cosmetic developments so that this research can be used to provide references and images to parties who need knowledge about the role of instafamous and content marketing in shaping responses to buying interest.

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The Effect of Risk Perception and Benefit Perception on Interest in Using the Allo Bank Application at Transmart Mataram with Trust as an Intervening Variable

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Abstract. This study aims to see the influence of risk perception and benefit perception on the use of interest mediated by trust variables - sampling with purposive sampling technique with 100 respondents who are Allo Bank users at Transmart Mataram. The research questionnaire was distributed to all respondents, and then the collected data was analysed using the PLS-SEM technique. The results showed that risk perception did not affect the interest in using Allo Bank at Transmart Mataram. Furthermore, perception of benefits and trust positively and significantly affect interest in using Allo Bank. At the same time, risk perception is found to have a negative and significant effect on trust, and perception of benefits has a positive and significant effect on confidence. Furthermore, although trust cannot mediate the impact of risk perception on interest in using, trust can judge the effect of perception of benefits on using Allo Bank in Transmart Mataram. The results of this research can be helpful in digital banks in further development and innovation to increase public interest in digital banking.

Keywords: Risk Perception; Benefit Perception; Interest in Using; Trust; Allo Bank.

INTRODUCTION

Technological developments in the current era of globalisation encourage fierce competition in the business world. This sophisticated era demands a lot of growth from many fields of Information Technology (IT). One of the formats of technological progress that is very significant is the opening of the Internet. Until now, the world has arrived at the industrial era 4.0, characterised by integrating all human activities into the virtual world without direct contact [1]. The development of science has resulted in various actions that rely on technology to make it easier for humans to use, such as e-government, e-wallet, e-education, e-laboratory, e-commerce, and others, all packaged in electronic form.

Payment systems or transactions previously could only be done in cash (cash-based). Now, transactions can be done non-cash. One of Indonesia's developing non-cash payment instruments is electronic money or e-money. After the

issuance of regulations regarding E-money by Bank Indonesia, the circulation of E-Money began to increase yearly [2]. Digital payment applications or digital wallets such as Dana, Go-Pay, and Shopee pay to Allo Bank with Allo pay features are now very popular and widely used by the public such as Dana, Go pay, Shopee pay to Allo Bank with Allo pay features.

Allo Bank can be categorised as a newcomer in the digital payments category. Allo Bank can be used for transactions in several CT Corp companies such as Trans Studio Mall, Trans Park, Trans Icon and Transmart throughout Indonesia. All Transmart outlets throughout Indonesia aggressively promote Allo Bank, one of which is in Mataram City, West Nusa Tenggara. Transmart Mataram began implementing the use of Allo Bank in June 2022. Allo bank users in Mataram until August 2022 reached 7,000 since it opened last June but experienced a drastic decrease in interest in using it the following month.

Interest in using is the degree to which a person's desire or drive to perform a particular behaviour is substantial [3]. In marketing, interest in using is classified as buying interest (willingness to accept), which is part of the behavioural component in the consumption attitude. Other marketing experts define buying interest as consumer behaviour that arises in response to an object that indicates the customer's desire to purchase [4]. Meanwhile, the literature also says that the decision to buy is influenced by the value of the evaluated product [4]. If the perceived benefits outweigh the sacrifices to get it, then the urge to believe it is higher. Conversely, if the benefits are smaller than the sacrifices, then buyers will usually refuse to accept and generally switch to evaluating other similar products.

Based on the explanation above, a person's interest can be influenced by the product's perceived benefits. Following the research results from [2] in his study, the perception of help positively and significantly affects the interest in using electronic money. At the same time, the opposite finding by [5] shows that the perceived benefit does not affect interest in using electronic payments. According to [6], the perceived advantage of use is how much a person thinks using technology will improve their performance.

Another factor that can influence a person's interest is the perceived level of risk. Research results by [7] show that risk perception positively and significantly influences interest in using electronic money services. The opposite finding is put forward by [8], namely, that risk perception does not affect consumer buying interest. According to [9], it is a state of uncertainty that a person considers when deciding "yes" or "no" to make a transaction. The issuer of electronic money (e-money) needs to consider this security risk factor to minimise public perception of the risk of transactions that can occur due to transactions carried out electronically with the aim that electronic money users avoid various worries when transacting using electronic money. Some risk factors that can occur by electronic money users include errors in entering numbers or codes when recharging electronic money due to user error themselves (human error) or because of facilities that have not been maximised.

The trust factor can also affect the interest in using online transactions. Research conducted by [10] found that trust affects interest in e-money. Meanwhile, the opposite result was found by

[11]: trust does not involve buying stakes. According to [12], trust is a psychological state of intention to accept vulnerability based on positive expectations of another choice or behaviour. In addition to having a direct effect, trust can mediate the perception of risk and practicality in its influence on buying interest. Author [13] research concluded that the threat felt by consumers indirectly affects consumer confidence to make online transactions on the selected online shopping site, which in deciding to make online transactions has previously passed the stage of interest in buying. Suppose consumers' trust in online shopping sites is high and exceeds the risk factors consumers feel. In that case, consumers will establish relationships and make online transactions through these online shopping sites even though there are still perceived risks. It can be said trust determines the actions that a consumer will take even though consumers still feel the danger that hurts the results of the steps to be taken [14].

Similarly, the level of security in transactions, especially on one sales site, will produce a highly positive perception of trust and buying interest, and vice versa; poor quality will result in a negative perception of the level of confidence and interest in buying. This is also by the study's results [15], which show that the perception of expediency has a positive and significant effect on trust, and trust has a positive and significant impact on purchase intent.

METHOD

Causality research is the type of research used. Causality research analyses the influence of one or more variables on other variables [16]. The study was conducted on 100 Allo Bank users at Transmart Mataram. The research questionnaire was distributed to all respondents, and then the collected data was analysed using the PLS-SEM technique. The characteristics of respondents in this study are pretty varied, as illustrated in Table 1.

Table 1 – Characteristics of Respondents

Variable	Description	No	%
Gender	Male	58	58
	Female	42	42
Age	Under 30 years old	68	68
	31-40 years old	23	23
	41-50 years old	8	8
	51-60 years old	1	1

Variable	Description	No	%
Education	Elementary School	1	1
	Junior High School	2	2
	Senior High School	37	37
	Bachelor Degree	60	60
Income	< IDR 1.500.000	14	14
	IDR 1.500.000–2.500.000	30	30
	IDR 2.500.001–5.000.000	32	32
	> IDR 5.000.000	24	24

RESULTS AND DISCUSSION

The data in this study were analysed using the PLS-SEM technique consisting of measurement and structural model tests. The outer model is then measured by convergent validity, discriminant validity, and reliability. This model is called a reflective measurement model because it evaluates the values of loading factor, composite reliability, Cronbach's alpha, AVE value, and discriminant validity. The cut-off value for the loading factor commonly used to measure convergent validity is ≥ 0.5 , with an average variance extracted (AVE) value of about 0.5 or above.

Table 2 – Correlation value (outer loading) and AVE

No.	Risk Perception (X1)	Outer Load-ing	AVE
1.	X1.1	0,780	0,670
2.	X1.2	0,762	
3.	X1.3	0,860	
4.	X1.4	0,894	
5.	X1.5	0,809	
6.	X1.6	0,873	
7.	X1.7	0,738	
No.	Benefit Perception (X2)	Outer Load-ing	AVE
1.	X2.1	0,818	0,646
2.	X2.2	0,778	
3.	X2.3	0,874	
4.	X2.4	0,756	
5.	X2.5	0,745	
6.	X2.6	0,843	
No	Trust (Z)	Outer Load-ing	AVE
1.	Z1.1	0,827	0,712
2.	Z1.2	0,892	
3.	Z1.3	0,810	
No.	Interest in Using (Y)	Outer Load-ing	AVE
1.	Y1.1	0,855	0,718
2.	Y1.2	0,861	
3.	Y1.3	0,856	
4.	Y1.4	0,816	

Based on the table, it can be seen that all measurement items on each variable, both Risk Perception (X1), Benefit Perception (X2), Trust (Z) and Interest in Using (Y) variables, show an outer loading value of > 0.5 , so it can be said that all indicators are valid. In addition, the AVE value of all research variables is more than 0.5, which means that the magnitude of variation in all items contained in each research variable meets the requirements for good convergent validity. Furthermore, reliability tests were carried out, and the results obtained in this study are presented in Table 3.

Table 3 – Results of the Reliability Test

Variable	Composite Reliability	Cronbach's Alpha
Risk Perception	0,934	0,918
Benefit Perception	0,916	0,891
Trust	0,881	0,798
Interest in Using	0,910	0,869

Based on the table, the value of Cronbach's alpha and Composite Reliability of all research variables is more than 0.7, indicating that the reliability level is accepted. So overall, the variables in this study, namely Risk Perception (X1), Benefit Perception (X2), Trust (Z) and Interest in Using (Y), are reliable. Meanwhile, structural model testing is carried out to test the coefficient of determination (Q^2), which measures how well the model can explain variations in dependent variables and test the hypothesis of this study. The following is the value of the coefficient of determination of this study.

Table 3 – Coefficient of Determination

No	Variable	R ²	Q ²
1	Trust	0,331	0.720
2	Interest in Using	0,581	

In this case, Q^2 is the same as the regression analysis interpretation of the coefficient of determination (R^2). Based on the results of the total coefficient of determination of 0.720, the diversity of data this research model can explain is 72%. At the same time, the rest is explained by other variables from outside the model that are not in-

cluded in this research model. Hypothesis testing is then done through a bootstrapping process to see if the independent variable influences the non-free variable by comparing the t count with the t table. If t counts / statistics > t table, the independent variables individually affect the de-

pendent variables. If the probability of significance is smaller than 0.05 (α) seen from the p-value, the independent variable individually affects the dependent variable. The test results can be seen in Figure 1 and Table 4 below.

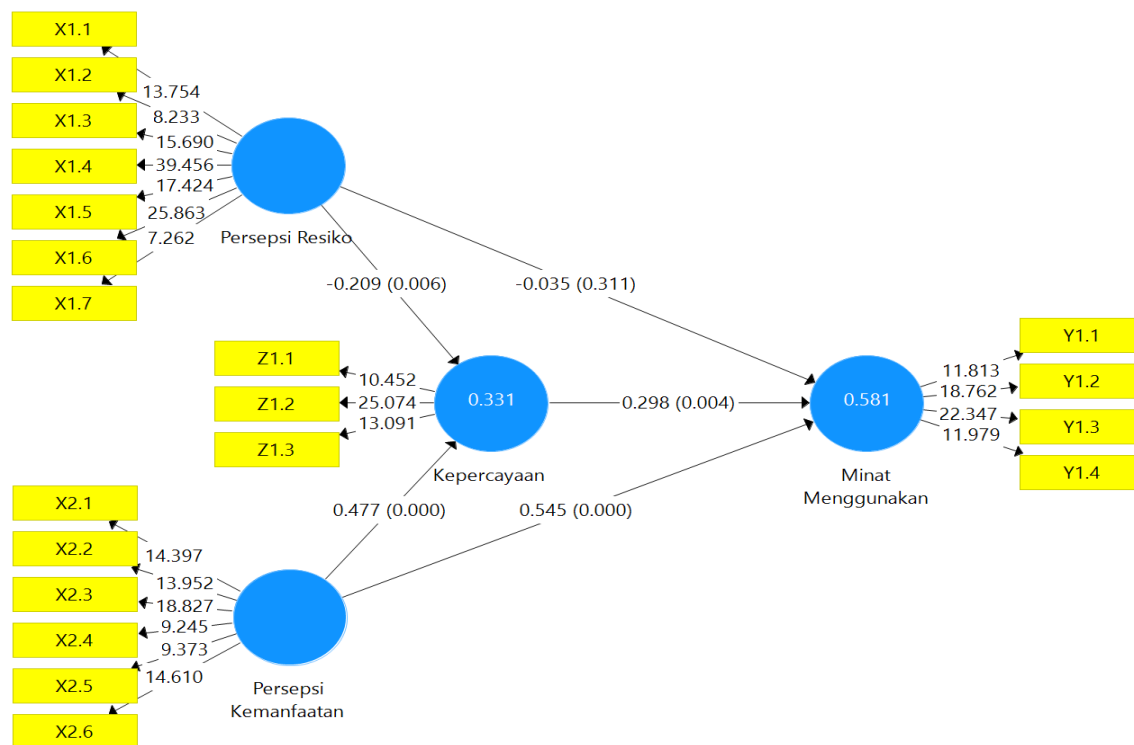


Figure 1 – Path Coefficient

Table 4 – Results of Model Structural Test

Influence Between Variables	Coefficient	T-Statistics	P-value	Conclusion
X1 -> Y	-0,035	0,496	0,311	Insignificant
X2 -> Y	0,545	4,364	0,000	Significant
X1 -> Z	-0,209	2,568	0,006	Significant
X2 -> Z	0,477	5,023	0,000	Significant
Z -> Y	0,298	2,730	0,004	Significant
X1 -> Z -> Y	-0,062	1,532	0,064	Significant
X2 -> Z -> Y	0,142	2,573	0,006	Significant

Based on the figure and table above, the relationship between variables can be explained as follows:

1. This study's First Hypothesis (H_1) states, "It is suspected that Risk Perception has a negative and significant influence on Interest in Using Allo Bank in Mataram Transmart". Through hypothe-

sis testing with PLS, with test results showing that the coefficient value is -0.035 with a p-value of 0.311 (more significant than the error tolerance value of 5% / 0.05), which means a negative but not significant effect, it can be stated that the first hypothesis is rejected. This finding aligns with the Theory of Planned Behavior (TPB). The SDGs can be used to explain that trust and perceived risk influence interest in using technology. One of the advantages of SDGs is their ability to analyse a situation in which individuals have no control over their behaviour. The SDGs explain that usage behaviour in information technology is determined by the perception of risk that may be experienced when using the technology [17].

According to [6], technology users will perceive the technology provided positively. Negative perceptions will arise as a result of the use of these technologies. This means that negative perceptions develop after users have tried the technology or users have had a bad experience with using the technology. In the context of interest in using

Allo Bank, consumers who have an interest in using Allo Bank are not determined by the perception of risk in its use. This is possible because the risk of using Allo Bank is relatively small, although there are some cases, such as entering the wrong account when making a delivery. Still, these complaints are speedy to handle. The findings of this study are slightly different from the results of research conducted by [7]. Risk perception positively and significantly influences interest in using electronic money services.

This study's second hypothesis (H₂) states, "It is suspected that the perception of benefits has a positive and significant influence on the interest in using Allo Bank in Transmart Mataram". Through hypothesis testing with PLS with test results showing that the coefficient value of 0.545 with a p-value of 0.000 (lower than the error tolerance of 5% (0.05) means a positive and significant effect, it can be stated that the second hypothesis can be accepted.

This finding aligns with one of the theories regarding the use of information systems, which is considered very influential and is generally used to explain individual acceptance of information systems: the Information Technology Acceptance Model (TAM). TAM is an information systems theory that models how users begin to receive and use technology [18]. This study also strengthens the research results from [15], where his analysis stated that the perception of benefits positively and significantly affects the interest in using electronic money.

This study's third hypothesis (H₃) states, "It is suspected that trust has a positive and significant influence on interest in using Allo Bank in Mataram Transmart". Through hypothesis testing with PLS, test results were obtained which showed that the coefficient value of 0.298 with a p-value of 0.004 (lower than the error tolerance of 5% (0.05), which means a positive and significant effect, so that it can be stated that the third hypothesis can be accepted.

In line with the Technology Acceptance Model designed explicitly for modelling the acceptance of information systems and technology is an adaptation of the Theory of Reasoned Action (TRA) by Ick Ajzen and Martin Fishbein, which is a theory of action based on the premise that the reaction and perception of a person to something will determine the attitude and behaviour of that person [17]. A perception of trust in front of something will give birth to behaviour in the

form of someone's interest in using goods. Several studies have been conducted that are the same as the study's results, namely [10], which says that trust affects interest in using e-money. Likewise, research by [19, 20] found that confidence positively affects interest in e-money.

This study's fourth hypothesis (H₄) states, "It is suspected that Risk Perception has a negative and significant influence on Consumer Confidence in using Allo Bank at Transmart Mataram". Through PLS testing with test results showing that the coefficient value is -0.209 with a p-value of 0.006 (lower than the error tolerance of 5% (0.05), which means a negative and significant effect, it can be stated that the fourth hypothesis is accepted.

The existence of these adverse outcomes or experiences determines the following behaviour. The smaller the risk perception of an individual, the greater the level of trust, and vice versa. This study's results align with research by [21]. It was found that perceived risk factors and beliefs have a relationship and influence each other. The higher consumer confidence in online buying and selling transactions, the lower the risk factor consumers feel. This study's results strengthen the research conducted by [22], which found that risk perception hurts trust.

This study's fifth hypothesis (H₅) states, "It is suspected that Perception of Benefits has a positive and significant influence on Consumer Confidence in using Allo Bank at Transmart Mataram" through PLS testing with test results that show a coefficient value of 0.477 with a p-value of 0.000 (lower than the error tolerance of 5% (0.05) which means a positive and significant effect so that it can be stated that the fifth hypothesis is accepted.

This result is in line with the theoretical concept of TAM quoted by [6], which explains that two factors influence the acceptance of technology, namely the perception of ease of use and the perception of the benefits of technology. The user's perception of perceived usefulness determines their trust in the technology. In addition, according to [18], the perception of help is a measure of a person's belief that using technology will improve their work performance. If a person believes an information technology system can be helpful, he will use it. The results of this study strengthen the results of research conducted by [15], which shows that the perception of expediency has a positive and significant effect on trust.

This study's sixth hypothesis (H6) states, "It is suspected that Risk Perception has a positive and significant influence on Interest in using Allo Bank in Mataram Transmart through the Trust variable". Through hypothesis testing with PLS, test results were obtained which showed that the coefficient value of -0.062 with a p-value of 0.064 (more significant than the error tolerance of 5% (0.05), which means a negative but not significant effect, so that it can be stated that the sixth hypothesis can be accepted.

This finding does not align with the theoretical concept proposed by [17], related to the Theory of Planned Behavior (TPB), that risk perception and trust influence interest in using technology. TPB explains that usage behaviour in information technology is determined by the perception of risk experienced when using the technology and the built element of trust. However, these findings are in line with the results [13]. In his research, it was concluded that the risk felt by consumers indirectly affects consumer confidence to make online transactions on the selected online shopping site, which in deciding to make online transactions has previously passed the stage of interest in buying. It can be said trust determines the actions that a consumer will take even though consumers still feel the risk that hurts the results of the steps to be taken.

This study's seventh hypothesis (H7) states, "It is suspected that the perception of benefits has a positive and significant influence on the interest in using Allo Bank in Transmart Mataram through the variable Trust". Through hypothesis testing with PLS, test results were obtained which showed that the coefficient value of 0.142 with a p-value of 0.006 (smaller than the error tolerance of 5% (0.05), which means a positive and significant effect, so that it can be stated that the seventh hypothesis can be accepted.

The results of this study are in line with the theoretical concepts put forward by [17] related to the Theory of Planned Behavior (TPB) and theories about the use of information systems that are considered very influential and are generally used to explain individual acceptance of the use of information systems [18]. The level of security in transactions, especially on one sales site, will produce a high positive perception of trust and buying interest and vice versa with poor quality,

resulting in a negative perception of confidence and good in buying. This is in line with the research results from [15], which show that the perception of expediency has a positive and significant effect on trust, and trust has a positive and significant impact on purchase intent.

CONCLUSIONS

Based on the results of the research and discussion described above, conclusions can be drawn from this study as follows:

1. Risk Perception does not affect the Interest in Using Allo Bank at Transmart Mataram. The perception of risk does not influence consumers' increasing interest in using Allo Bank at Transmart Mataram.
2. Perceived Benefits positively and significantly affect Interest in Using Allo Bank at Transmart Mataram. The higher the benefits consumers feel, the higher the consumer interest in using Allo Bank, and vice versa.
3. Trust positively and significantly affects the Interest in Using Allo Bank. The higher the trust Mataram Transmart Consumers feel, the higher their interest in using Allo Bank.
4. Risk Perception negatively and significantly affects Trust in Allo Bank in Transmart Mataram. The higher the risk consumers feel, the lower the trust Mataram Transmart Consumers have in using Allo Bank.
5. Perceived Benefits positively and significantly affect Trust in Allo Bank at Transmart Mataram. The higher the benefits consumers feel, the higher the trust Mataram Transmart Consumers have in using Allo Bank.
6. Trust cannot mediate the effect of Risk Perception on Interest in Using Allo Bank at Transmart Mataram. That is, the rise and fall of consumer confidence will not significantly impact increasing the risk effect on interest in using Allo Bank.
4. Trust can mediate the effect of Perceived Benefits on Interest in Using Allo Bank at Transmart Mataram. That is, the higher the trust of consumers, the higher the influence of Benefit Perception on interest in using Allo Bank at Transmart Mataram.

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The Effect of Brand Prestige, Perceived Sociability and Social Norms on Fear of Missing Out by Buy Now Pay Later

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Abstract. The rapid development of social media today can foster anxiety characterized by fear, worry, and anxiety that raises the fear of missing out (FOMO). In addition to impacting psychology, FOMO behaviour can also affect consumption behaviour. External factors and internal factors influence consumption behaviour. This study aims to determine the influence of consumer behaviour factors, namely brand prestige, perceived sociability and social norms, on the fear of missing out on smartphone brands moderated by buy now pay later. This type of research is quantitative research with an associative-causality approach. This study involved 120 respondents by applying non-probability sampling and data collection techniques through questionnaires. Data analysis in this study used a Structural Equation Model (SEM) approach based on Partial Least Square (PLS) using SMART PLS software. The analysis test results show that brand prestige, perceived sociability and social norms significantly affect FOMO. In the moderation test results, Buy Now Pay Later strengthens the effect of brand prestige and perceived friendliness on FOMO but does not enhance the impact of social norms on FOMO.

Keywords: Brand Prestige; Perceived Sociability; Social Norms; Fear Of Missing Out; Buy Now Pay Later.

INTRODUCTION

The trend of social media use in Indonesia is 54.6%, and 97.4% of them access social media while using the internet, based on the Indonesian Internet Service Providers Association (APJII) [1]. However, social media can also form anxiety when individuals check and see various activities that are being carried out by others. Thus, the rapid development of social media today plays a vital role in raising the fear of missing out (FOMO) [2–4]. Research [5] revealed that 72% of adults admit to checking their smartphones every hour. The frequency of use indicates that the tendency of addiction is high, which can cause individuals to start feeling unsatisfied, anxious, and unworthy, which is a symptom of FOMO. Fear of Missing Out is the fear of missing precious moments of individuals or groups and the desire to stay connected to what others are doing through the internet or cyberspace. FOMO is a social disease that is present in this era, which is exposed through lifestyle and

social space with indicators of fear, worry, and anxiety [6, 7].

FOMO is a phenomenon in psychology, but further research by [8] revealed that the concept of FOMO can be utilized in the marketing world, which leads to purchasing behaviour by putting pressure on the consumer decision-making process. Authors [9] stated that the FOMO phenomenon with consumer behaviour shows a cheerful and solid relationship, where the higher the level of individual FOMO, the higher the individual's consumption level. The phenomenon of FOMO on social media also affects consumer behaviour, where consumption behaviour caused by FOMO has the purpose of self-promotion, social status, and being different from others [3].

Authors [10] revealed that individuals with FOMO will form must-have behaviours to have well-known products such as iPhone and Samsung smartphone products. This triggers individuals to consume in fulfilling lifestyles not to meet needs but to get recognition from others. Authors [11]

research proves that the fear of missing out significantly affects product purchase intentions [8]. The desire to own a particular product or brand is closely related to FOMO behaviour. A brand can show social status and well-being to encourage prestige [12, 13]. So, the more expensive and luxurious a brand is, the higher the prestige obtained [12].

FOMO can also arise due to individuals' socialization process, which facilitates the creation of a healthy social space by fostering trust and ownership and a strong sense of community [14]. It can cause anxiety for individuals who want to be seen or noticed in a group. This desire will cause perceived sociability or social perception in individuals, defined as a process used to understand others in socialization. However, FOMO can also foster attitudes towards an individual's recognition in a group where social norms influence it. Social norms are rules or standards understood by group members [15], built through social pressure and the influence of people who are considered essential [16]. The FOMO phenomenon with consumer behaviour shows a cheerful and solid relationship [9].

The current payment method is not only cash with physical money and non-cash, but a new payment scheme has emerged to provide convenience and attract consumers, namely a payment scheme with the term Buy Now, Pay Later (known as PayLater) as a financial facility allowing payment methods with instalments without a credit card [17, 18]. The PayLater payment method makes it easy for individuals to purchase even in poor financial conditions. Marketers began to use the pay later payment method to attract consumer buying interest even though they did not have enough budget.

Research on FOMO has always led to the field of psychology in contexts such as social media and internet use [2, 19], as well as purchasing behaviour [3, 20]. Based on consumer behaviour factors, this study focuses on deepening the understanding of brand prestige, perceived sociability and social norms as variables that are assumed to be able to foster Fear of Missing out of smartphone brands. This research is related to the Fear of Missing out in consumer behaviour because research related to FOMO in consumer behaviour is still minimal. Second, the study examined the moderating role of the PayLater payment method on the Fear of Missing out of smartphone brands,

where research related to PayLater's relationship with FOMO has not been found.

Literature review

Consumer Behavior. According to [21], consumer behaviour studies how individuals, groups, and organizations choose, buy, use, and use goods, services, ideas, or experiences to satisfy their needs and desires. Factors that influence consumer behaviour, according to [21], are 1) External Factors: cultural factors and social factors; 2) Internal factors: personal factors (age and life cycle stage, occupation and economic circumstances, personality and self-concept; lifestyle and values), and psychological factors (motivation; perception; learning; memory).

Fear Of Missing Out. Authors [6] revealed that the FOMO phenomenon is related to the emotions, motivation, and behaviour of individuals, so this FOMO phenomenon is closely related to a person's psychological needs. FOMO is also a psychological construct defined by the worry of being absent from other people's valuable experiences and tending to constantly be eager to connect and curious about others' experiences. FOMO is usually influenced by brand prestige, which can be interpreted by elevating the position of products compared to brands that can show individual status about the brand [22]. In addition, FOMO also arises due to social norms. Social norms occur due to social pressure and the influence of people around them who are considered essential [16]. So when someone who experiences FOMO is influenced by the brand prestige of an item, especially a smartphone and pressure in the form of social norms in their social environment, individuals look for alternatives to meet their needs in shaping FOMO behaviour in the form of Buy Now, Pay Later. PayLater is an online loan service without a credit card, making it easier for consumers to pay for a transaction in the future, either with a single payment or in instalments [17].

The Effect of Brand Prestige on Fear of Missing Out. Brand prestige is defined by elevating the comparative position of products related to the brand [23] and showing the individual status of the brand [22]. Therefore, brand prestige is significantly associated with FOMO because a brand depicts privilege and can indicate personal status. In line with research [24] states that brand prestige has a significant effect on overall consumer value

perception. Based on this explanation, the researcher formulated the following hypothesis:

H1: Brand prestige positively affects the smartphone brand's Fear of Missing out.

The Effect of Perceived Sociability on Fear of Missing Out. Individuals with close relationships with others will want social support to get attention and recognition at the social level [25]. Based on research conducted by [26] states that there is a significant relationship between perceived sociability and FOMO; someone who is FOMO will usually feel worried about not being accepted in a particular class or social environment, so they try to have branded goods to enter the social status environment. Based on this explanation, the researcher formulated the following hypothesis:

H2: Perceived sociability positively affects the smartphone brand's Fear of Missing out.

The Effect of Social Norms on Fear of Missing Out. Social norms are various rules or standards that are understood and agreed upon by group members and motivate these individuals to comply [15]. Someone who wants to be part of and liked by the group tends to conform to group norms and pressures to fit in as much as possible [27]. This pressure can foster an attitude of anxiety and worry in individual FOMO indicators to constantly adjust to their group. Based on this explanation, the researcher formulated the following hypothesis:

H3: Social norms positively affect the smartphone brand's Fear of Missing out.

The Effect of Brand Prestige, Perceived Sociability and Social Norms on Fear of Missing Out with Buy Now Pay Later as a Moderation Variable. PayLater is an online loan method carried out without a credit card, and it is currently an attractive payment option for people with a limited budget. With PayLater, consumers are facilitated to pay for transactions in the future, either with a single payment or in instalments [17]. With the convenience provided, consumers may use pay later more widely. According to research by [7], ease of use can positively affect purchasing decisions using online loans (pay later). FOMO can impact the emergence of other emotional responses, namely imitating or following behaviour, with the desire to be the same as they idolize. Besides that, it can also cause excessive consumption behaviour [9]. Based on this impact, individuals will continue to strive to follow the same consumption as idols and someone considered influential, even though

the price of consumer goods is not cheap. Based on this explanation and the relationship with previous variables, researchers formulate hypotheses as follows:

H4: Paylater strengthens the influence of prestige brands on Fear of Missing out.

H5: Paylater strengthens the influence of perceived sociability on Fear of Missing out.

H6: Paylater strengthens the influence of social norms on Fear of Missing out.

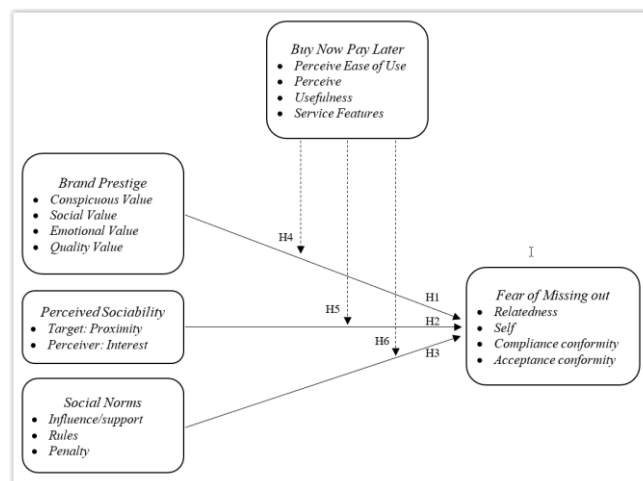


Figure 1 – Conceptual Framework

METHOD

Survey and Sample. The method used in this study is quantitative research with associative-causality quantitative research type [28]. The population in this study is Indonesians who use iPhones and Samsung smartphones. The number of samples in this study was 120 respondents. The sampling technique in the study used non-probability sampling. The criteria in this study were 18-34 years old and PayLater users. Questions on the questionnaire will be measured using a semantic differential scale of 1-7. The questionnaire is a closed questionnaire made in the form of a Google Form, then distributed through social media and given directly. The instrument quality test is the initial stage before testing using the Structural Equation Model (SEM) with Partial Least Square (PLS) using the Smart PLS application, consisting of validity and reliability tests. After that, structural model evaluation tests were conducted to test research hypotheses and the moderating effect.

Table 1 – Characteristics of Respondents

Characteristics		Person	%
Gender	Male	53	44
	Female	67	56
Age (years old)	16–20	7	6
	21–25	29	24
	26–30	45	38
	31–34	39	33
Education	Junior High School	1	1
	Senior High School	19	16
	Diploma	15	13
	Bachelor	77	64
	Master's	8	7
	Doctorate	0	0
Occupation	Students	22	18
	Entrepreneurs	17	14
	Civil Servant/Police/Army	11	9
	Private Employees	64	53
	Other	6	5
Income	< IDR. 1.500.000	23	19
	IDR 1.500.000 – IDR 3.000.000	19	16
	IDR 3.100.000 – IDR 5.000.000	31	26
	IDR 5.100.000 – IDR 10.000.000	37	31
	IDR 10.100.000 – IDR 20.000.000	5	4
	> IDR 20.000.000	5	4
West Nusa Tenggara		56	47

Characteristics		Person	%
Regional Distribution	East Nusa Tenggara	4	3
	South Kalimantan	1	1
	Central Kalimantan	1	1
	Jakarta	4	3
	West Java	4	3
	Central Java	35	29
	Est Java	12	10
	Yogyakarta	3	3

Women dominated the characteristics of respondents in this study by 56% of the 120 samples. Most respondents' educational background is a bachelor's, 64%, with the type of work as a private employee. The oldest age of this respondent is adult age, 26-30 years old by 38%, with an average income of IDR 5,100,000 – IDR 10,000,000. The respondents' regional origins distribution was highest in West Nusa Tenggara at 47%.

Instrument Test and Measurement Model. Validity and Reliability. The measurement model or outer model describes the construct validity and reliability of all variables in the hypothesis model. Construct validity and reliability are described in loading factor, composite reliability and average variance extracted (AVE). In the measurement model, validity and reliability are good if the loading factor and AVE do not exceed the limit of 0.5. In contrast, composite reliability and Cronbach's alpha show satisfactory values above 0.7 [29].

Table 2 – Measurement

Indicator Items	Outer Loadings	Composite Reliability	Average Variance Extracted (AVE)	Cronbach's Alpha
Brand Prestige				
iPhone/Samsung brand seems to be a prestigious smartphone brand	0.719	0.891	0.578	0.854
iPhone/Samsung are expensive smartphone brands	0.712			
iPhone/Samsung brand smartphones are exclusive smartphones	0.821			
When using the iPhone/Samsung smartphone brand, I have my satisfaction compared to using other brands	0.807			
iPhone / Samsung smartphone brands have their unique value	0.780			
iPhone/Samsung smartphone brands are synonymous with high-quality	0.716			
Perceived Sociability				
My close friend uses an iPhone/Samsung smartphone.	0.753	0.909	0.667	0.874
My close friends often talk about iPhone/Samsung smartphones.	0.826			

Indicator Items	Outer Loadings	Composite Reliability	Average Variance Extracted (AVE)	Cronbach's Alpha
My family uses iPhone/Samsung smartphones.	0.771			
Seeing friends using iPhone/Samsung smartphones, I want to use iPhone/Samsung smartphones.	0.842			
My friend recommended using an iPhone/Samsung smartphone.	0.883			
Social Norms				
My friend suggested using an iPhone/Samsung smartphone.	0.830	0.883	0.607	0.838
All group members are required to use iPhone/Samsung smartphones.	0.631			
I use iPhone smartphones because people around me also use iPhone / Samsung smartphones.	0.888			
When using iPhone/Samsung smartphones, I am more satisfied than other brands.	0.864			
I use an iPhone/Samsung smartphone to get others to follow me.	0.642			
Fear of Missing Out				
I feel proud to have an iPhone/Samsung smartphone.	0.738	0.927	0.644	0.907
I feel left behind if I don't use an iPhone/Samsung smartphone.	0.857			
I became confident using an iPhone/Samsung smartphone.	0.777			
I felt the need to use an iPhone/Samsung smartphone for my existence to be recognized.	0.732			
I fear being ridiculed when my smartphone brand is different from my friends.	0.799			
I feel worried if I don't use an iPhone/Samsung smartphone.	0.905			
I feel worried when my friend's smartphone brand is more up-to-date.	0.795			
Buy Now Pay Later				
The Pay Later feature helps me get the desired item.	0.628	0.888	0.571	0.849
I find it easy when transacting using Pay Later.	0.828			
Verify approval to use the Pay Later feature is faster.	0.811			
I don't find it challenging to use the Pay Later feature.	0.748			
I feel safe when transacting using Pay Later.	0.745			
I can afford to pay bills using the Pay Later feature.	0.757			

The validity test results in this study showed that the value of all statements on the variables brand prestige, perceived sociability, social norms, buy now pay later, and fear of missing out was more than 0.5, and most of the values were more than 0.7. So, it is concluded that all statement items in this study are declared valid. Of the four research variables, the value of Cronbach's alpha and composite reliability shows that all variables have a value greater than 0.7, which is said to be reliable.

Discriminant Validity. Discriminant validity is used to ascertain the results of convergent validity. It occurs when two instruments measuring two predictive constructs do not correlate and produce an uncorrelated score. One of the methods used is the Fornell-Larcker criterium.

The value of discriminant validity is obtained at a value greater than the correlation value between latent constructs by Fornel's criteria so that the results are valid and can be analyzed further.

Table 3 – Fornell-Larcker Criterion

	BP	BP*BNPL	PS	PS*BNPL	SN	SN*BNPL	FOMO	BNPL
BP	0.761							
BP*BNPL	-0.005	1.000						
PS	0.572	0.100	0.816					
PS*BNPL	0.105	0.700	0.131	1.000				
SN	0.403	0.104	0.304	0.206	0.779			
SN*BNPL	0.113	0.370	0.215	0.428	0.025	1.000		
FOMO	0.638	0.157	0.645	0.386	0.548	0.243	0.803	
BNPL	0.571	0.297	0.595	0.464	0.376	0.365	0.727	0.756

RESULTS AND DISCUSSION

To assess the predictive ability of the research model, a calculation was made on the value of the coefficient of determination (R^2), a test of the good-fit model. According to [29], R-Square values range from 0 to 1, with higher levels indicating higher prediction accuracy. However, the criteria of the R^2 value depend on the complexity of the model and the research discipline. In consumer behaviour, an R^2 value of 0.2 is already considered high. The output R^2 value of fear of missing out is 0.716, which is categorized as high. The results showed that the variables of brand prestige, perceived sociability and social norms constructs could explain the variability of the fear of missing out construct by 71.6%. In comparison, 28.4% of the system was influenced by other factors not included in this study.

Hypothesis Test Results

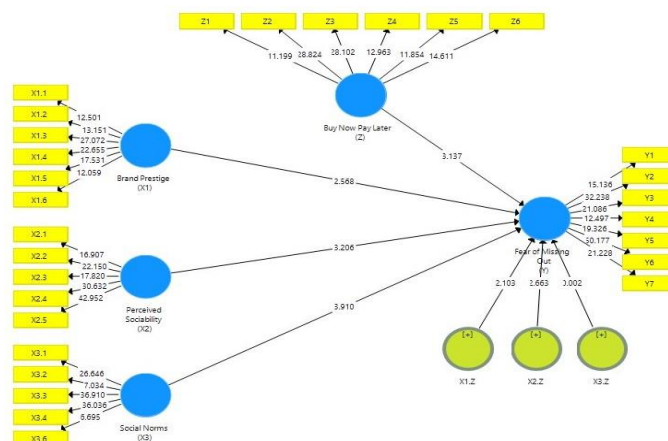


Figure 2 – Path Coefficient Model with PLS Bootstrapping

In the hypothesis test, this study uses several criteria that must be met, namely the original sample value, t-statistical value and probability value through bootstrapping in PLS. The t-statistic value and p-value of each hypothesis in this study are seen in the following table:

Table 4 – Hypothesis Test Results

Hypothesis	Influence Between Variables	Original Sample	t-Statistics*	P-Values**	Description
H1	BP -> FOMO	0.190	2.568	0.011	Significant
H2	PS -> FOMO	0.268	3.206	0.001	Significant
H3	SN -> FOMO	0.242	3.910	0.000	Significant
H4	BP*BNPL -> FOMO	-0.159	2.103	0.036	Significant
H5	PS*BNPL -> FOMO	0.264	2.663	0.008	Significant
H6	SN*BNPL -> FOMO	0.000	0.002	0.999	Insignificant

Notes : Significant on * $t > 1.96$ or ** $p < 0.05$

Based on the table above, all hypotheses have a t-statistic value of more than 1.96 and a p-value of less than 0.05, so it can be interpreted that five hypotheses are accepted and have a significant effect, while one has no considerable impact.

The Influence of Brand Prestige on Fear of Missing Out of Smartphone Brands. The internal research

results show that prestige brands significantly influence the Fear of Missing Out (FOMO). Brand prestige is a relatively high product position associated with a brand [23]. A brand with prestige can provide intangible benefits. The brand will meet the psychological needs of consumers, strengthen its identity and improve its image [30] so that it can be said that brand prestige can show

individual status. About FOMO someone who experiences FOMO will feel left behind or have a lower social degree than others; someone will compare their life with the lives of others. The way to overcome the feeling of being left behind is to elevate social status through consumer goods used by others, one of which is using smartphones.

The Effect of Perceived Sociability on Fear of Missing Out of Smartphone Brands. The study results show that perceived sociability significantly influences smartphone brands' Fear of Missing Out. One factor affecting a person's consumption behaviour is derived from social factors consisting of reference groups and social roles and status. In this study, it can be concluded that social factors derived from perceived sociability can cause FOMO to smartphone brand consumption. This strengthens research from [26], which states a significant relationship between perceived sociability and FOMO. According to the respondents' answers, close friends influence the use of iPhone / Samsung smartphone brands.

The Influence of Social Norms on Fear of Missing Out of Smartphone Brands. The study results show that social norms significantly influence smartphone brands' Fear of Missing Out. Social norms are defined as rules and standards that are understood by group members and those that restrict social behaviour without the force of law. Social norms affect various forms and consumption choices [31], including the consumption of iPhone / Samsung smartphones. Research [27] states that someone who wants to be part of and liked by a group tends to adjust to norms and pressures so that FOMO behaviour appears as a form of pressure constantly to change, even though they have to spend relatively high money [31].

The Influence of Brand Prestige on Fear of Missing Out with Buy Now Pay Later as a Moderation Variable. Paylater can significantly moderate the influence of prestige brands on smartphone brands' Fear of Missing Out. Brand prestige is defined as the status of a relatively high product position in a brand, and generally, a prestigious brand is attached to a high price. This prestige encourages someone to buy even at a higher price [21]. Someone with FOMO will still make purchases of prestigious brands because it eliminates anxiety and worry, so they find solutions to meet their needs by using pay later. Paylater can help someone get

a prestigious brand despite having a limited budget and in an easy method or way.

The Effect of Perceived Sociability on Fear of Missing Out with Buy Now Pay Later as a Moderation Variable. Pay later significantly moderated the influence of perceived sociability on smartphone brands' Fear of Missing Out. In social groups or communities that individuals participate in, consumer segmentation also influences product behaviour and buying habits, including the iPhone / Samsung smartphone brand. The closer individuals are to the community, the stronger they are to behave in the same consumption as the community. Someone is willing to behave the same to get attention and recognition at the social level [25] and to be able to enter a circle of friends [26] — one of the conveniences of behaving in the same consumption as the community is the pay-later payment option. Therefore, paying later can strengthen the influence of prestige brands on smartphone brands' Fear of Missing Out.

The Effect of Social Norms on Fear of Missing Out with Buy Now Pay Later as a Moderation Variable. Pay Later was not significantly able to moderate the influence of social norms on smartphone brands' Fear of Missing Out. This research contradicts the opinion [31] that social norms can encourage someone to behave expensively (more expensive consumption behaviour) despite having financial barriers. Factors influencing differences in the results of this study may come from reliable information within a group. As with payments with pay later, many still choose to make payments directly and not underestimate someone who makes payment transactions with pay later or in a small manner.

Moderation Variable Criteria. Identification of the classification of moderation variables aims to find out where the Buy Now Pay Later moderation variable is in the dependent variable, which is based on the significance of the relationship between the moderation variable and the dependent variable. The author [32] classifies moderation variables into four: 1) pure moderator, which occurs when β_2 is non-significant and β_3 is significant; 2) quasi-moderation (pseudo-moderation), which occurs when β_2 is significant, and β_3 is substantial; 3) moderating homologized (potential moderation), occurs when β_2 is non-significant and β_3 is non-significant; 4) predictor moderator, occurs when β_2 is significant and β_3 is non-significant.

Table 5 – Classification of moderation variables

Code	Influence Between Variables	t-Statistics	P Values	Description
β_2	BNPL -> FOMO	3.137	0.002	Significant
$\beta_{3.1}$	BP*BNPL -> FOMO	2.103	0.036	Significant
$\beta_{3.2}$	PS*BNPL-> FOMO	2.663	0.008	Significant
$\beta_{3.3}$	SN*BNPL -> FOMO	0.002	0.999	Insignificant

The moderation variable coefficient value results are classified on the moderator predictor, where the Buy Now Pay Later variable only acts as a predictor variable (independent). The Buy Now Pay Later variable should not be a moderation but an intervening, exogen, antecedent or predictor variable (independent) [32].

CONCLUSIONS

The results proved that brand prestige, perceived sociability and social norms significantly affect the Fear of Missing Out on iPhone / Samsung smartphones. Brand prestige positively and

substantially influences the Fear of Missing Out. Perceived sociability positively and significantly affects the Fear of Missing Out. Social norms positively and significantly affect the Fear of Missing Out smartphone brand. The results also provide an understanding related to the use of Buy Now Pay Later (Pay Later) against Fear of Missing Out in consumer behaviour as a moderation variable that has not been found in previous studies. Pay later significantly moderated the influence of brand prestige and perceived sociability on Fear of Missing Out. However, paying later does not moderate the impact of social norms on smartphone brands' Fear of Missing Out.

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The Effect of Authenticity and Iconic Attractions on Visiting Decisions in Sasak Sade Village with Image of Heritage Tourism as a Mediating Variable

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Abstract. This research departs from the need to analyse authenticity and iconic attractions in visiting decisions. In addition, there are inconsistencies in some previous studies. Realism is widely studied to see tourist satisfaction, so there needs to be more marketing management literature in tourism. This study examines the authenticity of heritage tourism, iconic tourist attractions, and image of heritage tourism with tourist visiting decisions to Sasak Sade in Rembitan Village, Pujut District, Central Lombok Regency. This type of quantitative research was used to test the effect of research variables by distributing questionnaires to 100 tourist respondents who visited the research object. The research findings show that authenticity, iconic attractions, and the image of heritage tourism positively and significantly affect visiting decisions. However, the authenticity of Sasak Sade Village tourism only strongly affects the formation of heritage tourism. The heritage tourism image of Sasak Sade Village is formed from its iconic attractions. These findings are expected to concern policymakers such as the Regional Government, Village Government, and tourism managers of Sasak Sade Village to maintain and preserve the ancestral heritage to date and not be eroded by outside cultures.

Keywords: authenticity; iconic attractions; image of heritage tourism; visiting decisions.

INTRODUCTION

Tourism has a strategic position in increasing the country's foreign exchange. The Ministry of Tourism and Creative Economy stated that in 2019, the tourism sector contributed US\$ 16.9 billion in foreign exchange; in 2020, it contributed US\$3.2 billion. This foreign exchange contribution makes the tourism sector a new prima donna for national development. In 2022, the Ministry of Tourism and Creative Economy targets the number of foreign tourists arriving at 1.8 to 3.6 million and the target movement of archipelago tourists to 550 million.

This tourist visit cannot be separated from the tourism industry. Indonesia has many potential resources, such as natural beauty, culture, heritage, and many others [1]. In addition, tourism development is expected to stimulate economic improvement in tourist areas both nationally and regionally to improve the economy at the village

level. Villages in Indonesia are starting to become tourist destinations because they have beautiful nature, culture, and heritage [2]. Like one of the famous tourist destinations, Sasak Sade Village is located in Rembitan Village, Pujut District, Central Lombok Regency, NTB. Sasak Sade Village is a reasonably popular tourist destination because they still maintain and preserve their ancestors. Sasak Sade Village can preserve its heritage by maintaining its authenticity and, until now, still holds firm beliefs, preserving cultural values, traditional houses, and customs. Therefore, Sasak Sade Village reflects the Sasak Tribe of Lombok Island. There is an iconic main attraction in Sade. These, namely traditional house buildings, are still preserved and maintained with characteristic roofs made of reeds, roof horses using bamboo without nails, walls made of woven bamboo, and directly on the ground smeared with cow dung. This heritage is the attraction of tourist destinations in Sasak Sade Village. This can be defined as a form

of tourism based on commercialising historical and socio-cultural assets to attract tourists [3].

Heritage tourism is a very significant component of the tourism sector worldwide, as local traditions, including arts and crafts, lifestyles, cuisine, and dance, as well as built heritage such as buildings, parks, and museums, serve as the main attraction in the heritage tourism industry [4]. The authors [5] state that interest in heritage tourism has grown significantly in recent years and has often become a leading tourism product. This interest growth must align with the preservation of authenticity in heritage tourism.

The research gap in this study lies in the lack of literature that elaborates on authenticity and iconic attractions' impact on tourists' visiting decisions. In addition, this research departs from the inconsistency of previous research results. The use of images of heritage tourism variables is also a novelty of this research. The author [1] shows that tourist attractions positively and significantly affect visiting decisions at the KH. Abdurrahman Wahid Tomb Religious Tourism. These results differ from research conducted by [6], who found that attraction partially has an insignificant effect on visiting decisions at the Bukit Kasih Kanonang tourist attraction.

Literature Review

Visiting Decision. Ajzen first proposed the theory of Planned Behaviour, a development of the Theory of Reasoned Action (TRA). The theory of Reasoned Action states that the intention to do something is caused by two factors, namely subjective norm and attitude towards behaviour. The authors then added one perceived behavioural control factor, thus changing the Theory of Reasoned Action to the Theory of Planned Behavior. Ajzen and Fishbein then expanded the theory. The Theory of Planned Behavior focuses on individuals' intention to perform certain behaviours. The theory of planned behaviour explains that attitude towards behaviour is essential in predicting an action. However, it is necessary to consider a person's attitude in testing subjective norms and measuring the person's perceived behavioural control. A person's intention to behave will be higher if there is a positive attitude, support from people around and the perception of ease because there are no barriers to behaviour. The author [7] states that behavioural intention is affected by three factors: attitude towards behaviour,

subjective norms and perceived behavioural control. The authors [8] state that purchasing decisions are the evaluation stage of consumers forming brand preferences in the selection and may also include an intention to buy the most preferred brand.

Meanwhile, according to [9], a purchasing decision is a choice of two or more alternative purchasing decision options, meaning that when someone can make a decision, several choices must be available. In tourism, purchasing decisions are assumed to be the same as visiting decisions. Several factors affect a person's visit to a tourist destination, according to [7], namely location, facilities and functions, image or image, price, and services obtained. According to [10], the indicators of purchasing decisions are as follows: 1) Determination to buy after knowing product information; 2) Deciding to buy because of the most preferred brand; 3) Buying because it suits your wants and needs; and 4) Buying because of recommendations from others.

The effect of authenticity on visiting decisions and the image of heritage tourism

Authenticity has been recognised as a projection of expectations, preferences, and images based on tourists' perceptions of a destination [11]. The author [12] defines authenticity as something historical and cultural or connected to the past where tourists answer items that signify history. Authenticity is often associated with the original location of the area, as tourists are motivated by the desire to engage and learn about other people's cultures. Authenticity in heritage tourism is more about visitors' judgments, memories, experiences, and cultural backgrounds [13]. Therefore, authenticity is oriented towards authentic tourism objects, cultural customs, or historic building heritage. In heritage tourism, the more accurate a destination is, the more value is perceived from a destination [14].

The strong desire to feel authenticity is expected to motivate tourists to visit and be directly involved in heritage tourism. So that tourists who think the authenticity of tourism will impact their decision to stay. In addition, perceived authenticity that meets tourists' expectations will contribute to forming a favourable destination image [15]. The availability of information or cues that reflect the historical uniqueness of an area is likely to have a significant impact on tourists' perceptions of authenticity and reinforce the formation of a positive image, authenticity being the most

influential part of shaping destination image [16]. In addition, it is empirically confirmed that authenticity is not only a significant factor that changes tourists' evaluation and perception of heritage destinations [17]. It hypothesises that tourists' perceived authenticity positively affects satisfaction by forming a favourable image. The author [18] argued that consumers' future buying decisions were determined by the degree of authenticity they perceived in products and services. The indicators of authenticity in this study are 1) objective authenticity, 2) constructive authenticity, and 3) existential authenticity.

Based on the analysis above, the hypotheses in this study can be stated:

H1: The better the authenticity, the faster the decision to visit tourists.

H4: The better the authenticity, the better the image of heritage tourism.

Iconic Attractions on visiting decisions and image of heritage tourism. Tourism and heritage attractions have a reciprocal relationship, as tourism can attract visitors to heritage attractions [19]. According to [20], iconic attractions are visitor attractions that represent objects, phenomena, significant figures, or other ideas. A tourist attraction can represent and resemble other tourist objects, concepts, or images in combination with a description of tourists' initial knowledge of the attraction, which is then used as an iconic sign. Many of the main attractions of a tourist destination can be considered flagship and iconic attractions. Flagship attractions are often regarded as attractive to many visitors, while iconic attractions mainly serve as landmarks and can increase the number of visitors to the destination [20]. Attractions can be an attraction that becomes an essential part of one's travel journey, the primary motivation for choosing a tourist destination, or an optional activity selected while at the destination. An attraction is an icon if it is a universally recognised symbol or representation of the location, culture, and heritage. It evokes a strong positive image among tourists and locals [21]. Images and knowledge of destinations that appear in the minds of tourists may include popular attractions because they can shape the image of heritage tourism destinations and the identity of these destinations. The indicators of iconic attractions in this study are 1) iconic based on history, 2) iconic as a symbol, and 3) representing local characteristics.

Based on the analysis above, the hypotheses in this study can be stated:

H2: The better the iconic attractions, the faster the decision to visit tourists.

H5: The better the iconic attractions, the better the image of heritage tourism.

Image of Heritage Tourism on Visiting Decisions. Heritage tourism is a very significant component of the tourism sector worldwide, as local traditions, including arts and crafts, lifestyles, cuisine, and dance, as well as built heritage such as buildings, parks, and museums, serve as the main attraction in the heritage tourism industry [4]. Authors [22] suggest that destination image is the totality of impressions, beliefs, ideas, expectations, and feelings towards a place over time. Thus, destination image refers to how individual solid beliefs, opinions, and expressions from various sources of information about a tourist destination can affect their visiting decisions. Authors [23] describe the key to success in positioning a destination as creating and managing a unique destination and knowing the perception of the image of a tourism destination. An image is not formed by itself but by a person's perception of an object [24]. A tourist destination image can be formed from advertising and word of mouth, visits to tourist destinations, experiences created from tourist destinations, and satisfaction with visiting destinations [25]. A destination image can be formed before visiting because of getting information about tourist objects and after gaining experience in these tourist destinations.

In the context of heritage tourism, there are still not many studies that explain the image of heritage tourism. The image of heritage tourism is conceptualised as the experience of tourists travelling on cultural heritage sites that are still preserved over time. Heritage is our legacy from the past, what we live today, and what we will pass on to future generations [26]. This preserved heritage has the potential to be developed and publicised as tourism. Heritage tourism combines various elements such as cultural, urban, industrial, rural, culinary, and ethnic heritage. Heritage tourism includes archaeological sites with historical value and cultural centres with natural and environmental significance [5]. Interest in heritage tourism has grown significantly in recent years and is often the flagship product of tourism. Indicators of the image of heritage tourism in this study are 1) historical background, 2) entertainment, and 3) convenience.

Based on the analysis above, the hypotheses in this study can be stated:

H3: The better the image of heritage tourism, the faster the decision to visit tourists.

H6: The image of heritage tourism mediates the relationship between authenticity and visiting decisions.

H7: The image of heritage tourism mediates the relationship of iconic attractions to visiting decisions.

The conceptual framework in this study can be seen in the figure below:

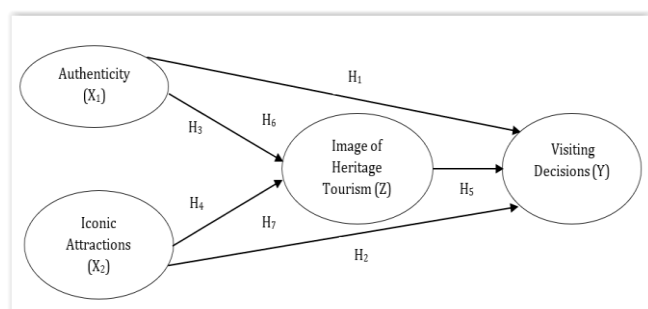


Figure 1 – Conceptual framework

METHODS

This type of research is quantitative. The population in this study were all tourists who had visited Sasak Sade Village, Rembitan Village, Pujut District, and Central Lombok Regency. The sample in this study was 100 respondents with the criteria

of having visited Sasak Sade Village and aged more than 17 years. Because the population is unknown, the sampling technique is non-probability sampling with a purposive sampling approach. Data collection was carried out by distributing questionnaires at the research location. In this study, each research variable is measured by a score that refers to the Semantic Differential scale and data testing using Smart PLS v 3.2.9.

This study targeted 100 respondents who visited the Sasak Sade Village tourist destination, Rembitan Village, Central Lombok Regency. Respondents in this study were dominated by men as much as 62%, the respondents' jobs were self-employed primarily at 31%, the respondents' visiting time was between 30-60 minutes, the average amount of respondent spending when visiting ranged from Rp. 100,000 to 200,000, as much as 39%, and the regional distribution was dominated from outside NTB, as much as 69%, foreign tourists, as much as 10% and tourists from NTB, as much as 19%.

Instrument and Measurement Model. The measurement model or outer model explains the construct validity and reliability of all variables in the hypothesis model. Construct validity and reliability are presented on the loading factor, composite reliability and Average Variance Extracted (AVE). In the measurement model, validity and reliability are good if the loading factor and AVE do not exceed the 0.5 limit. In contrast, composite reliability and Cronbach's alpha show a satisfactory value if it is above 0.7. [27].

Table 1 – Measurement Table

Indicator Item	Outer Loadings	Composite Reliability	Cronbach's Alpha	Average Variance Extracted (AVE)
Authenticity				
The authenticity of Sade can be seen from the architectural design that is still maintained.	0,650	0,904	0,873	0,612
The authenticity of Sade is portrayed in the way of life of the local community, which is still practised in daily life.	0,838			
The authenticity of Sade is portrayed in the customary traditions that are still practised in daily life.	0,870			
The authenticity of Sade is portrayed in the cultural traditions that are still practised in daily life	0,832			
The authenticity of Sade made me feel connected to its history	0,787			
The authenticity of Sade provides a unique spiritual experience	0,628			
The authenticity of Sade's customs energises me to get involved in local cultural practices	0,813			

Indicator Item	Outer Loadings	Composite Reliability	Cronbach's Alpha	Average Variance Extracted (AVE)
Iconic Attractions				
Sade traditional house is an icon that tells about the life of the local community since ancient times	0,846	0,917	0,887	0,688
Sade traditional house is a symbol of the relationship between man and his God	0,649			
Sade's traditional house as a symbol of close family ties	0,697			
Sade traditional houses that are maintained imply the pride of the local community	0,892			
Sade traditional house illustrates the value of mutual respect between guests and homeowners	0,857			
Sade traditional house illustrates the simplicity of local people in daily life	0,888			
Image of Heritage Tourism				
Sade has a famous historical heritage value.	0,789	0,885	0,844	0,564
Sade has a historical heritage that is still preserved by the local community	0,647			
Sade features many local cultural attractions as tourist entertainment	0,687			
Sade provides a place to shop for local speciality products	0,829			
Sade has friendly locals	0,861			
I feel comfortable enjoying heritage tourism in Sade	0,863			
Visiting Decision				
I feel confident deciding to visit Sade after getting the information	0,800	0,902	0,874	0,537
I feel confident to visit Sade after getting the information.	0,775			
I was quick to decide to visit Sade after getting the information	0,819			
I decided to visit Sade because I was interested in the heritage it has	0,913			
I decided to visit Sade because I liked the heritage it had	0,834			
I visited Sade Tourism because I have a travelling routine	0,744			
I visited Sade Tourism because I have a desire to travel	0,889			
I visited Sade Tourism because of the need to travel	0,885			
I decided to visit Sade because I got a recommendation from other people	0,745			

From the results of the concurrent validity test by looking at the outer loading value, it was found that there were 3 statement indicators with a value below 0.6, so the statement item was eliminated in further testing. The AVE value obtained by each construct shows a value above 0.5 so that it is included in the excellent category. Meanwhile, the four research variables, the Cronbach alpha and composite reliability values, show that all variables have a value greater than 0.7, so they are reliable.

Measurement Model. The figure below is a model scheme in the PLS programme tested. From the scheme, it is explained that there are four variables, namely the variables of Authenticity (X1), Iconic Attractions (X2), Image of Heritage Tourism (Z), and Visiting Decisions (Y).

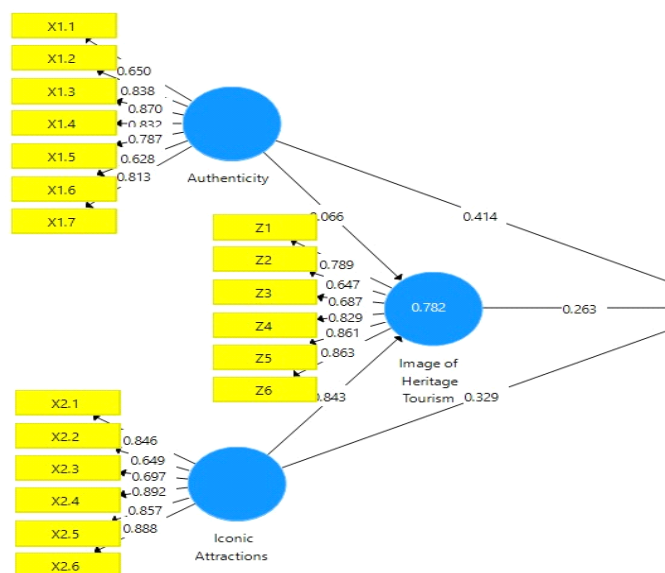


Figure 2 – Schematic of PLS Measurement Model

RESULTS AND DISCUSSION

The R^2 value illustrates how much the ability of the independent variable to explain the dependent variable. The output result of the R^2 value of the visiting decision is 0.729. These results indicate that the construct variables of authenticity, iconic attractions, and image of heritage tourism can explain the visiting decision construct variable by 72.9%. In comparison, the remaining 27.1% is affected by other factors not included in this research variable. From the results of the R^2 value of 72.9%, it is included in the strong enough category.

Hypothesis Test Results. Hypothesis testing can be done through the t-statistic and probability values through Bootstrapping in PLS. The t-statistic value and p-value of each hypothesis in this study are shown in the following table:

Table 2 – Interpretation of Hypothesis Test Results

Hypothesis	Effect between Variables	t-statistics	P-Values	Result
H1	Authenticity → Visiting Decision	5,29	0	Significant
H2	Iconic Attractions → Visiting Decision	3,189	0,002	Significant
H3	Image of Heritage Tourism → Visiting Decisions	2,4	0,018	Significant
H4	Authenticity → Image of Heritage Tourism	0,957	0,341	Not Significant
H5	Iconic Attractions → Image of Heritage Tourism	14,176	0	Significant
H6	Authenticity → Image of Heritage Tourism → Visiting Decision	0,666	0,507	Not Significant
H7	Iconic Attractions → Image of Heritage Tourism → Visiting Decision	2,52	0,013	Significant

The effect of authenticity on visiting decisions. Authenticity positively and significantly affects the decision to visit tourists to Sasak Sade Village. This means that the authenticity or authenticity of the tourist attraction affects the speed at which tourists decide to visit Sasak Sade Village. Authenticity gained through experience by engaging in tourism activities in Sasak Sade Village is essential in accelerating tourists' decision-making. This is also the opinion of [4], who recognise that tourists' intrinsic interest in the culture and heritage of a tourist destination becomes a force of attraction that affects their choice of tourist destination and is also associated with the experience. Previous research also shows that authenticity significantly improves the quality of heritage tourism, and authenticity has a fundamental effect on tourists' intention to visit heritage sites [3] so that tourists can quickly decide to visit the heritage tourist destination of Sasak Sade Village.

The effect of iconic attractions on visiting decisions. Iconic attractions positively and significantly affect the decision to visit tourists to Sasak Sade Village. Iconic attractions owned by Sasak Sade Village are the main attractions that can represent objects and symbols to accelerate tourist decision-making. The main attraction owned by Sasak Sade Village is the heritage of traditional houses, which are iconic and have become the pride of residents because they are still preserved today. This is also in line with [20], that featured attractions are often considered attractive to many visitors, while iconic attractions mainly function as landmarks and can increase the number of visitors to tourist destinations.

The effect of the image of heritage tourism on visiting decisions. The image of heritage tourism has a positive and significant impact on tourists' decision to visit Sasak Sade Village. The image of

heritage tourism owned by Sasak Sade Village is the beliefs, feelings, impressions and expectations of tourists towards the traditional and cultural heritage that is still preserved from time to time because it has historical value. The historical background, tradition, and cultural heritage of the famous Sasak Sade Village are essential factors in improving the destination image, which can encourage tourists to visit. Sasak Sade Village is renowned for its tourism image of traditional heritage and local culture that is still preserved, so it is often referred to as a miniature of the Sasak Tribe of Lombok Island. Destination image will be the initial reference in determining how attractive a tourist destination is and will affect the decision about which tourist destination to visit [28]. So broadly, the image of heritage tourism has an effect on tourist decision-making where the better the image of heritage tourism owned by Sasak Sade Village will make tourists make decisions to visit faster.

The effect of authenticity on the image of heritage tourism. Authenticity has a positive but insignificant impact on the image of heritage tourism. This result shows that the authenticity of the Sasak Sade Village destination does not mean it has no effect. Still, the effect is not meaningful or does not improve the image of heritage tourism in Sasak Sade Village. The image of Sasak Sade Village heritage tourism is more affected by other factors. This study's results differ from research conducted by [26], which states that objective authenticity and existential authenticity have a positive and significant effect on the image of tourist destinations. This is possible because the heritage of Sasak Sade Village is still limited to the story told by the tour manager and has not been included in the World Heritage at UNESCO or recognised by the authorities. Several factors cause authenticity not to shape the image of heritage tourism in Sasak Sade Village, namely the existence of several traditional houses adopting modern buildings such as the floor no longer using soil, most of the traditional houses that are inherited are used as places to sell weaving products and the existence of modern retail in tourist areas. Visitors may assume that the heritage of traditional buildings and culture is only used for commercial purposes without maintaining its authenticity.

The effect of iconic attractions on the image of heritage tourism. Iconic attractions have a significant impact on the image of heritage tourism. The iconic attractions that are the main attraction of Sasak Sade Village are traditional house buildings

that are still maintained and preserved today. This significant effect indicates that the iconic attractions variable strongly impacts the image of heritage tourism destinations. Forming a heritage tourism destination image is essential to motivate and increase the number of tourist visits. As is known, the traditional house building that is still preserved is an icon in Sasak Sade Village. Some attractions that attract the attention of the building, namely tourists, are presented with the attraction of dressing the house floor with cow or buffalo dung and several other attractions, such as traditionally making woven fabrics. This unique process is a tradition that is still being carried out today.

The effect of the image of heritage tourism as a mediating variable between authenticity and visiting decisions. The image of heritage tourism has a positive but insignificant impact on mediating the relationship between authenticity and visiting decisions. The image of heritage tourism does not have a strong enough mediating effect between authenticity and staying decisions to be an indirect relationship. The results of this study do not strengthen the findings of [15], who state that destination image mediates authenticity and engagement in tourist satisfaction of historical areas in China. The image of heritage tourism cannot be a link between tourism authenticity and visiting decisions at Sasak Sade Village tourist destinations.

The effect of the image of heritage tourism as a mediating variable between iconic attractions on visiting decisions. The image of heritage tourism has a significant impact in mediating the relationship between iconic attractions and visiting choices. The image of heritage tourism can become a mediating variable that strongly affects the relationship between iconic attractions and tourist visiting decisions. This happens because iconic attractions form the image of heritage tourism in Sasak Sade Village.

CONCLUSIONS

The results prove that authenticity, iconic attractions, and the image of heritage tourism positively and significantly affect the decision to visit tourists to Sasak Sade Village. At the same time, authenticity has no significant effect on forming a heritage tourism image but is affected by iconic attractions. In the mediation test, the image of heritage tourism can only be a link between iconic

attractions and visiting decisions, but not the authenticity relationship to visiting decisions.

The results of this study are an attention for the Government, tourism managers, and the local community to continue to preserve their ancestral heritage because the image of Sasak Sade Village heritage tourism is not formed from the authenticity of its heritage.

This research contributes theoretically to developing consumer behaviour in the tourism sector, one of which is the purchasing decision-making process. The conceptual framework in this research is to look at decision-making in the context of marketing to strengthen theoretical concepts by explaining the relationship between the effect of authenticity and iconic attractions as one of the factors of visiting decisions. In addition, these results support the ties of tourist destination image through iconic tourist attractions. Tourism authenticity in previous studies has been one factor in destination image formation in heritage tourism. However, the results of this study prove that not all authenticity can affect the image of heritage tourism due to several factors such as the tourist attraction itself, the impression formed from the tourist experience when directly involved, and the authenticity mainly focused on being commercial for profit.

This research provides an overview of heritage tourism management strategies to maintain the quality of its authenticity and iconic attractions. With the advancement of technology and globalisation, it is not uncommon for traditional and cultural heritage to be eroded by outside cultures. For that, several ways need to be done, such as residents of Sade providing education to every child about the historical background, geographical history, and demographic history of Sasak Sade Village, the existence of miniatures or replicas of iconic buildings so that every visitor can see a broad picture of Sasak Sade Village, limiting the number of residents living in the Sasak Sade Village tourist area and every resident who will build a new house or contemporary building chooses a location outside the tourist area, traditional homes can function as a place to visit and work. They do not live there, but the traditional house is still kept authentic, and the Sasak Sade Village tourism area protects the authenticity of its heritage by separating the selling zone from the insulated house. In addition, the authenticity of the heritage of Sasak Sade Village is registered as a world heritage by UNESCO so that it can be covered sustainably.

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Value Co-Creation Analysis in the Perspective of Service-Dominant Logic at PT Qlue Performa Indonesia

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Abstract. This service-dominant logic paradigm emerged as a new perspective on marketing concepts, emphasising customers as active participants in creating value. This study investigates the value co-creation process at PT Qlue Performa Indonesia from a services-dominant logic perspective. This research was conducted using a qualitative approach with content analysis. Data were obtained through structured, in-depth interviews, observations and documentation studies. This study found two categories relating to the realisation of value co-creation implementation: service procedures and DART model implementation. This decisive service procedure becomes the ideal space for implementing value co-creation.

Keywords: Service-Dominant Logic; Value Co-creation; DART Model; Relationship Marketing.

INTRODUCTION

The development of a globally connected business world as an impact on advances in information technology indeed results in fierce competition between business people or companies. Entering the era of Society 5.0 will undoubtedly provide many challenges and opportunities in the business sector [1]. Changes in this era are also inseparable from post-pandemic conditions that result in new behaviours and habits or changes in consumer's behaviour in meeting their needs [2, 3]. This phenomenon is evident, as shown by the increasing number of companies that try to seize new market share in various ways and innovations that manifest in the form of products (goods and services) [4, 5].

Concepts and theories in marketing science are constantly evolving and have undergone many changes in viewpoints or paradigms. Today, the marketing paradigm as a model of economic exchange no longer refers to the exchange of products but instead relates to services. This paradigm that prioritises services in the exchange process is known as service-dominant Logic (SDL). This paradigm shift or perspective develops from microeconomic thinking marketing management to the formation of service phenomena [6].

This SDL paradigm emerged as a new way to examine the marketing concept. Authors [3] say that this new paradigm has shifted the concept of Goods-Dominant Logic (GDL), which only focuses on physical outputs and discrete transactions, towards services-dominant Logic (SDL), which focuses more on intangibility, exchange processes and relationships/collaboration. Authors [6] emphasised that the difference between the SDL and traditional marketing concepts lies in the customer's position. So, in general, the SDL concept views customers as active subjects and integrated parts of the company [1, 5, 7, 8].

Authors [6] state the basic premise of SDL with "service is the fundamental basis of exchange" and "the customer is always a co-creator of value. This concept emphasises the customer as an active participant in creating value. There is a collaborative process between the company and the customer, where the customer is considered a co-creator, no longer a passive recipient of value in creating customer benefits. The form of active consumer involvement in co-production in the service describes the process of co-creating value that is the basis of service logic. Thus, collaboration patterns reflect closer relationships, alliances, partnerships, and trends towards resourcing between customers and companies in several aspects (Table 1).

Table 1 – Traditional Concepts from GDL to SDL

Goods Dominant Logic Concepts	Transitional Concepts	Service-Dominant Logic Concept
Goods	Services	Service
Products	Offerings	Experience
Feature/Attribute	Benefit	Solution
Value-added	Co-Production	Co-creation of Value
Profit Maximisation	Financial Engineering	Financial Feedback / Learning
Price	Value Delivery	Value Proposition
Equilibrium System	Dynamic Systems	Complex Adaptive Systems
Supply Chain	Value-Chain	Value Creation Network / Constellation
Promotion	Integrated Marketing Communication	Dialogue
To Market	Market To	Market With
Product Orientation	Market Orientation	Service orientation

The most fundamental principle in service exchange is specialised knowledge and skills. The process of value co-creation shows the implementation of SDL activities. In this context, the value created is not just a product or service made by the joint efforts of customers and companies. It also involves more remarkable customer experience and satisfaction when interested in a transaction of the company's products or services [9].

Service-dominant logic arises because of the encouragement of the initial goal to do something for and with other parties, better known as customer-centric and customer-responsive. In this logic, services are defined as applying competencies through actions, processes, and performance that benefit other entities and the entity itself. The research results [10] found that organisational culture can moderate the influence of active customer participation in the value co-creation process as an indicator of improving service quality. Furthermore, it is strengthened by the results of research by [8], which conclude that indications of value co-creation can be shown through business relationships that allow companies to develop their competencies in new product development and marketing. This confirms that the high quality of interaction and relationships can guarantee companies reap more significant benefits in value

co-creation and the successful development of new products/services.

The research results [7] revealed that customer engagement and co-creation significantly contribute to competitive advantage and provide customer satisfaction value. Specifically, customer involvement in shared value creation impacts increasing market penetration, customer relationships, profitability, and emerging new competencies due to collaboration between customers and the company.

Authors [1, 11] said value co-creation could be created through DART building key blocks. This confirms that the DART model is an indicator to measure/identify the application of co-creation value in a company. The DART (Dialogue, Access, Risk Assessment and Transparency) model is a model that clearly describes the basic principles that companies must have to implement value co-creation successfully. Consumer access to information and the ability to engage in dialogue through consumer communities have changed the role of consumers in today's business systems.

The description above illustrates that SDL plays a role in increasing the company's strength to satisfy consumer needs and achieve organisational and social goals. In this case, it can be said that the company has competitive power through services. Competition through services is more than value-adding activities on products. Effective competition through services must be carried out with views and approaches by all parties in the organisation that aim to satisfy consumers. However, referring to the previous research above, it is still limited in quantity. Besides that, the object of study is more focused on MSME actors, not on a company scale with a vendor model.

The research conducted by [5] on a shared value creation study on vendor business models is limited to an internal focus with SOAR analysis. No research on using the DART analysis model in vendor business models has been found. Technological developments, the emergence of Presidential Instruction No 3 of 2003, and the Indonesian Creative Economy Development Plan for 2018-2025 encourage companies to be involved and take maximum benefits to support their business continuity. This competition also extends to various industries, including companies in the field of Artificial Intelligence (AI) and Internet of Things (IoT) innovations to support the realisation of the Smart City ecosystem. For this reason, researchers are interested in investigating the value co-creation process at Qlue Performa from a services-dominant logic perspective.

METHODS

The type of research used is qualitative research with a deductive content analysis approach. Inferential content analysis retests existing data in a new context, testing categories, concepts, models, or hypotheses. Furthermore, the method used in this study is divided into the following three parts:

Participants. Participants in this study consisted of 5 employees and one Qlue customer. Researchers used the purposive method to get participants. Participants in this study will be shown under pseudonyms (not real names) to ensure identity confidentiality.

Table 2 – Research Participants

No	Name	Description
1	Wira PS	Business Development
2	Ika RT	Finance
3	Andre HT	Engineering
4	Diken PD	Sales Marketing
5	Iqbal MT	Chief Engineer
6	Yusup SS	Customer

Procedure. At the data collection stage, researchers collect data that refers to the opinions of [12] using interactive methods, which are in-depth studies using data collection techniques directly from people in their natural environment. Primary data were collected using structured interviews, where researchers used interview guidelines that had been systematically arranged and completed for data collection. Secondary data is obtained through company records or documentation, social media and company websites.

Data Analysis. After conducting an in-depth interview, the researcher transcribed the interview results, pouring the recording into text or writing. Data in the form of text (transcription) is further classified and analysed according to data analysis methods that have been categorised, namely data reduction, data presentation, verification and conclusions.

In the data reduction stage, researchers use a content analysis approach. Content analysis is preceded by coding relevant terms or uses of words and sentences, which appear most during the interview process. In the case of coding grants, the context of the term is also worth noting. Then, a classification is carried out on the coding that has been done. Classification is done by looking at the extent to which units of meaning relate to the purpose of the study. This classification is intended to build the category of each classification. Then, units of meaning and categories are analysed and searched for relationships with each other to find the meaning, meaning, and purpose of the content of the communication.

Triangulation. Triangulation is a technique of checking data validity that utilises something else. The study results were triangulated using two main mechanisms: 1) The findings were confronted with the documented data and 2) member checks.

RESULTS AND DISCUSSION

The main results are shown in Table 3.

Table 3 – Frequency Data of Encoding Results

Research Objectives	Category	Theme	Topic	Frequency
Shared Value Creation at Qlue Performa Indonesia	Service Procedure	Marketing Team	Approach to the consumer	5
			Identify Customer Needs	4
			Brand Awareness	3
		Sales Team	Receiving PO	4
			Manufacturing Cooperation Agreement	3
		Legal Team	Validating Cooperation Agreement	1
		Project Team (Operation)	BAST	4
			Trial (product demo)	3
			Develop Solution and Product	2
			Delivery product	1
			NDA	1
		Finance Team	Billing Invoice	2
	DART Model	Dialogue	Direct Product Introduction (online)	6

Research Objectives	Category	Theme	Topic	Frequency
			Introduction of Intermediate Products (offline)	5
			Relationship Marketing	4
			Service excellence (benefit)	2
			Consumer Needs	2
			Price Offer	1
		The Access	Web	5
			App	1
			Social media	1
			Contact Person/Customer Service	1
		Risk	Product Checking and Testing	7
			Cooperation Agreements (Product compatibility, payment deadline, payment model, DP)	5
			Credit Analysis	2
			Handover Documents	2
			NDA	1
		Transparency	Online Information (Web, Social media, application)	8
			Administrative Documents	4
			Member Account	1

Service Procedure. *"Marketing first, we approach consumers. We brand the products we have to create awareness in the market of the existence of Qlue products"* (Diken PD-Employee).

Qlue Performa Indonesia, or Qlue, is a Smart City ecosystem company based on Artificial Intelligence (AI) and Internet of Things (IoT) innovations. Qlue has built a platform to connect the government with the community to collaborate and encourage more efficient, effective, and accountable governance transformation in realising Indonesia as a Smart Nation. Qlue has two product categories marketed, namely 1) Smart Enterprise, which supports business potential with AI-based technology, and 2) Smart City, which supports extensive collaboration to create an ecosystem of a region using AI and IoT-based technology.

The company's understanding of service procedures in the form of standard stages of service provided to customers to meet their needs. This understanding leads to the project team's work in meeting customer needs with innovative and solution products. This understanding describes the team involved in serving customers thoroughly. The teams involved will describe the flow and stages of customer service.

DART Model Implementation

Creating shared value between producers and consumers occurs through interaction, which is explained through the DART Model. The interaction begins with a dialogue between the two. Consumers express their desire for a certain number of products. Manufacturers respond to such requests concerning the production capabilities of such enterprises. This interaction can be through face-to-face access or communication media. Each party will bear risks in this interaction, which will also be communicated. Both producers and consumers are transparent about the communication that occurs.

In the process of shared value creation using the DART model, companies must constantly communicate and interact with customers, listen to their feedback, and evaluate the risks associated with the product or service. This way, companies can create excellent customer value and build long-term, mutually beneficial relationships.

Understanding and application of value co-creation viewed from the point of view of the DART model. In its service procedures, Qlue shows a vast space for customer communication and interaction, indicating high opportunities for value co-creation.

Dialogue. The marketing department serves consumers first, which will validate and explain the products Qlue owns. When there is an initial match between consumer needs and products owned by Qlue, the consumer will be directed to the sales team to conduct further assessment. At this time, the dialogue process between consumers and companies to achieve mutual value creation begins. If there has been a mutual value agreement, the sales administration will follow the next process, which includes discussions on Work Orders (WO) and Cooperation Agreements (CA). This is by what was conveyed by one of the informants, namely, *"starting from the agreement to receive orders, usually through PO (purchase orders) issued by consumers, then continued by making CA (Cooperation Agreement) by the sales team with the help of the legal team"* (WPS).

The arrival of consumers to this company can be based on personal motivation or through marketing activities carried out by the marketing team. *"Marketing first, we approach consumers. We do branding of the products we have to create awareness in the market of the existence of Qlue products"* (DP). For the creation of this offer, consumers can then proceed to the company's customer service. Consumers will deliver the desired product, and the company will consider existing production capabilities. When both parties agree, it will be forwarded to the sales administration.

Sales administration *"starts from receiving orders in the sales department, usually through PO (purchase orders) issued by consumers, then the sales department will create CA documents. CA documents need to be validated through the signatures of both parties. After that, the CA is submitted to the project team, which will be responsible for delivering solutions and products to clients by the agreement stated in the CA. After the product is delivered, there will be a Handover Document (HD) proof that the product has been officially handed over from the manufacturer to consumers. Furthermore, the HM is given to the finance team as a basis for making invoices for billing"* (DP). The PO (Purchase Order) will list information about customer data, quantity and product details, product prices, delivery timeline and payment methods. The information in this PO will also be listed in the CA (Cooperation Agreement) issued by the manufacturer.

Access. *"For QlueThermal products, we directly come to PT Qlue Performa Indonesia to check and test all product features. Then, if appropriate, the*

sales and engineering team of Qlue will visit the office to provide a demo/trial period for product trials at the location directly, usually approximately two weeks. Furthermore, if the trial process goes as expected, the next sales administration process is issuing PO and other sales documents, where the process can be done online" (FP).

Access here broadly includes face-to-face and indirect interaction. Indirect communication can be through telephone calls, messages, or emails. Access refers not only to when sales transactions occur but also to marketing products. The company carries out marketing strategies by communicating directly (pick up the ball) with marketing sales and engineers who handle a project. This variety of communication access will facilitate the process of goods sales transactions.

Access also refers to sales communication procedures. This means the consumer's procedure to access the sales department is also discussed in this case. Consumers can access the sales department either directly or indirectly through intermediaries. Consumers can access various Qlue products and services directly through the www.qlue.ai website. Indirectly means that there will be intermediaries from Qlue, namely through the sales or sales division. This is the company's strategy for product marketing. *"We certainly have a target to boost sales, so we carry out sales strategies through digital marketing and conventional sales through our representatives"* (DT).

Risk. Sales transaction risks are divided into risks for the company and consumers (sharing risk). For companies, the most significant risk is in the payment process, where there is a possibility of default on accounts receivable. *"When it comes to non-payment risks, it is quite high because our payment system is usually paid at the end, or sometimes there are even consumers who pay monthly. Therefore, our finance team usually bill customers past the payment due date"* (DP).

Therefore, it is essential to conduct a credit analysis at the beginning of the sales process as a default prevention measure. One of the steps taken is to apply the existence of DP (Down Payment) at the beginning of the transaction. *"Usually, the DP is between 30-50 % depending on the agreement with the consumer"* (IR). Credit analysis includes understanding the type of consumer and their track record. *"There are many types of our consumers, but the most common ones are two types. The first is those who want all features complete, according to what they want, but at the cheapest*

price. The second is a fairly fair consumer where they appreciate our product and all its features by agreeing on a fairly attractive price" (WPS). Type one consumers want the most complete product at a low price. Some consumers usually carry out projects with minimal capital, not infrequently even without capital. They go into debt when purchasing goods and then pay after the project funds are disbursed/obtained. These consumers are vulnerable to bad debts.

For this reason, it is necessary to do selective credit, namely, selecting consumer data that will choose to use credits when purchasing our goods. Type two consumers want the best product to meet their needs without being too fixated on price. Satisfaction is the most important thing for them. This type of consumer usually has good cash flow and a track record of purchases. The risk of bad debts can be smaller than that of the first type of consumer.

The most significant risk for consumers is that the product does not meet their expectations. This can mean that some aspects are lacking, or it turns out that the quality of the product is not as expected. Of course, these two things will cause complaints to the company. *"If, for example, the products received by consumers are not by what has been agreed or ordered, they will complain. Even the worst can cause them not to want to sign HD, so the company cannot do billing"* (WPS). Risks like this are overcome by deliberation until finally, a fair point is found that is agreed upon by both parties. *"So later improvements will be made to the product by what is agreed by consumers and companies"* (MI).

Transparency. *"Regarding sales, we always try to be transparent with consumers. For example, related to price, we always describe the price we give to any component and the time we need to deliver the product. So that consumers are also clear about what they get and how long it takes. We try not to sell our consumer's promises"* (AH). Transparency with customers is limited, meaning that the company keeps things as secrets, such as the technology used. It is not conveyed to consumers.

"So if in the IT department, there are many components, the consumer should not know the details about our source code. As the saying goes, our kitchen secrets remain in our keep. We always have an agreement with our consumers at the beginning in the form of an NDA (Non-Disclosure Agreement)

where it is agreed that the information we exchange during the development of their products should not be leaked to outside parties without prior permission. We also have a UAT (User Acceptance Test) agenda where consumers are given approximately one week to test their products before they sign on to HD. This aims to prevent product incompatibility with what has been agreed at the beginning" (AH).

Transparency here means that consumers can find out the components of the selling price of the product in detail, including usually the amount of 11 % VAT, additional prices for certain specifications, sales transportation costs, and discounts given. In addition, with this UAT agenda, consumers can assess whether the products produced are what was agreed upon so that they are willing to sign the handover documents.

CONCLUSIONS

Based on the description above, the service procedures provided by Qlue in meeting customer needs emphasise teamwork in a single project, so it is considered a vendor business model. This business model positions the project team (production operations) as central and vital in service. Realising this, Qlue continues to optimise the role of sales in accompanying the interaction process between customers and project teams (production) and continues to update so that service remains the primary material for product and service introduction. Thus, this service procedure is decisive and becomes a space for applying the value co-creation approach.

The results of this research have developed the concept of theory and previous research that is used as a reference in this research. The idea of value co-creation [9, 13] as a procedure used to create a product or service through collaboration with partners can be proven by the applicable service procedures at Qlue Performa Indonesia. This service procedure can involve customers from the beginning, when looking for information, to product trials and even to finalising products according to their needs. This reinforces the findings of [6] regarding the SDL perspective in implementing co-creation. This can be shown by placing customers as an internal part, indicated by consumer engagement from beginning to end.

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The Effect of E-Wom, Sharia Compliance and Muslim Customer's Perceived Value on Customer Loyalty at Bank NTB Syariah with Emotional Attachment as a Mediating Variable

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Abstract. This study aims to determine the influence of E-WOM, Sharia Compliance, and Muslim Customers' Perceived Value on customer loyalty at Bank NTB Syariah with emotional attachment as a mediation variable. The sample in this study involved 170 respondents using research data collection techniques using questionnaires. Data analysis in this study used a Structural Equation Model (SEM) approach based on Partial Least Square (PLS). The results of statistical testing show that the variables of E-WOM, Sharia Compliance and Muslim Customer's Perceived Value (X) have a significant favourable influence on Loyalty (Y) directly or through mediation from Emotional Attachment (Z).

Keywords: E-WOM; Sharia Compliance; Muslim Customer's Perceived Value; Emotional Attachment; Loyalty.

INTRODUCTION

Indonesia is the fourth most populous country in the world and the most populous Muslim country. Based on the Ministry of Home Affairs data, Indonesia's Muslim population is 238.09 (86.93%) million people as of December 31, 2021. Indonesia has great potential in the producer market and banking services [1]. Sharia banks stand against the backdrop of Muslims' desire to avoid usury [2]. Most consumers who use Islamic banks' services are loyal customers. Customer loyalty is usually seen in how customers provide information or recommendations in the digital era through E-WOM [3]. E-WOM positively and significantly influences customer loyalty. After doing E-WOM, customers will form an emotional attachment and decide as much as possible to choose products that have an emotional attachment to themselves so that they are urged to buy products [4].

In line with research conducted by [5], EWOM on Emotional attachment has a positive and significant influence on Emotional Attachment. When consumers have received reasonable, transparent and appropriate information about a product or service, it can cause emotional attachment. Consumers with high emotional attachment are also

influenced by one of the legal aspects of Islamic banking, which is compliance with Sharia principles. The emergence of Islamic banks is a solution for Muslims who want to save their *muamalah* from transactions that are not by Islamic law. In addition, the emotional attachment experienced by customers is through Muslim customers' perceived value, which can be felt when getting products provided by service providers. This is because the perceived value is an evaluation of Islamic Sharia values carried out by customers on the values obtained while using the product [6].

In the end, customer loyalty will be formed with Sharia compliance. In line with research [7], Sharia compliance positively and significantly affects bank customer loyalty. In addition, customer loyalty will be formed due to the Muslim Customer Perceived Value (MCPV). In line with research [8], Muslim customers' perceived value has a positive and significant effect. Meanwhile, according to [1], emotional attachment positively and significantly influences loyalty. With the inconsistency of previous research results from several previous studies, this topic is interesting to study. This study has not discussed too much research related to E-WOM, Sharia Compliance, and Muslim Perceived Value towards loyalty focusing on Islamic Banks.

And researchers tried to add a mediating variable in the form of emotional attachment. Therefore, further research needs to be done on the Effect of E-WOM, Sharia Compliance and Muslim Customer Perceived Value on Customer Loyalty mediated by emotional attachment in the hope that it can help explain the relationship between variables.

Literature Review

Customer Loyalty. According to [9], consumer behaviour is the study of how individuals, groups and organisations choose, give, use and how goods, services, ideas or experiences satisfy needs and desires that lead to the decision-making process in carrying out consumption of goods or services so that the behaviour encourages loyal behaviour. Customer loyalty is a behavioural encouragement to make repeated purchases and build customer loyalty to a product or service [10]. Islamic bank consumer loyalty can arise from exchanging information among consumers through EWOM. Electronic word of mouth is a "venue" or the most important place for consumers to express opinions, and consumers consider it more effective than word of mouth because of its convenience and wider reach [11]. According to [12], more and more consumers in developing countries use internet-based information technology, especially social media, to share knowledge, experience, opinions and recommendations about many things, including brands.

Social media allows individual consumers to engage in an open communication network with many others who share a common interest in a particular subject, for example, a brand. This creates a sense of empowerment for each other in consumers, allowing them to develop and rely on brand-related information [12]. Social media has become an essential platform for forming symbolic meanings of brands, which will drive positive EWOM around the brands discussed [13]. In addition, loyalty can also arise from consumer perceptions of Islamic banks' adherence to Sharia principles, referred to as Sharia Compliance [14]. Customer loyalty, mainly Muslim customers, can arise from the value of the shopping experience felt through Islamic benefits that contribute to the value of the shopping experience or using service providers; it is called Muslim Customer Perceived Value. The influence of the above variables on customer loyalty can be mediated by emotional attachment between consumers with characteristics with deep feelings of connection, affection,

and passion for specific goods or services, which is called emotional attachment [15].

The Effect of EWOM on Emotional Attachment Variable. A positive perception of a product or service will stimulate positive memories that cause emotional attachment to the product or service. According to [16], consumers will evaluate the product when information is exchanged through EWOM. In addition, positive EWOM can also persuade potential customers and influence consumer perceptions of a product review or product recommended by other customers. Research [17] said Electronic Word of Mouth (EWOM) positively and significantly affects Emotional Attachment. Based on this explanation, the researcher formulated the following hypothesis:

H1: The better the Electronic Word Of Mouth, the higher the Emotional attachment for Bank NTB Syariah Customers.

The Effect of Sharia Compliance Variables on Emotional Attachment. According to [18], Sharia Compliance is the adherence of Islamic banks to Sharia principles. However, few researchers have examined how Sharia Compliance directly affects Emotional Attachment, which makes researchers interested in studying it. Because in phenomena and logic, if a company or bank is getting better at applying Sharia principles in services, operations and service products, it offers and is also supported by the State of Indonesia, which is a majority country of Muslim people, it will create a high emotional attachment where people who use Sharia Bank services aim not only based on profit but to worship to Allah Almighty. So the following hypothesis can be formulated:

H2: The better the Sharia Compliance, the higher the Emotional Attachment for Bank NTB Syariah Customers.

The Effect of Muslim Customer Perceived Value Variables on Emotional Attachment. The value of the customer (CV) reflects the customer value itself, which explains what consumers receive and can provide [19]. However, not many researchers have examined how Muslim Customer Perceived Value directly affects Emotional Attachment, which makes researchers interested in researching it because phenomenally and logically, if there is a good Muslim Customer Perceived Value, it will increase emotional bonds and positive responses between customers and companies in building relationships. So the following hypothesis can be formulated:

H3: The better the Muslim Customer Perceived Value, the higher the Emotional Attachment to Bank NTB Syariah Customers.

The Effect of Electronic Word of Mouth Variables on Loyalty. A positive EWOM will create a good image for the company, so it will indirectly create persuasion for other consumers and allow for repeat purchases because of the formation of a good product perception. The better the information obtained through electronic word of mouth, the more customers will increase loyalty, considering that information through electronic word of mouth is the most critical factor in increasing consumer loyalty. Research [20] states that EWOM has a positive and significant effect. So the following hypothesis can be formulated:

H4: The better the Electronic Word of Mouth, the higher the Customer Loyalty to Bank NTB Syariah.

The Effect of Sharia Compliance Variables on Loyalty. Islamic banks are intended for Muslims because they use Islamic values that often prioritise the principles of free usury or interest. Customer loyalty is an invaluable asset for the company. Islamic banking will make several efforts to build a strong perception in customers' minds by providing the best service in every service it has. Research [7] states that Sharia Compliance positively and significantly affects loyalty. So the following hypothesis can be formulated:

H5: The better the Sharia Compliance, the higher the Customer Loyalty to Bank NTB Syariah.

The Effect of Muslim Customer Perceived Value Variables on Loyalty. According to [21], customer value has become a surefire weapon to attract and retain consumers. Besides that, customer value has become a significant factor for success in the manufacturing industry and service providers. Value is critical because it generates customer satisfaction and loyalty [6]. Research [8] says that Muslim Customer Perceived Value positively and significantly influences loyalty, so the following hypothesis can be formulated:

H6: The better the Muslim Customer Perceived Value, the higher the Customer Loyalty to Bank NTB Syariah.

The Effect of Emotional Attachment Variables on Loyalty. Consumers will show a supportive and favourable feeling toward a brand when its image matches their self-image [22]. Thus, customer attachment to a brand will increase their loyalty. The higher the customer's emotional attachment,

the higher their loyalty to the brand. This research conducted by [23] shows that the emotional attachment to a brand positively and significantly affects customer loyalty. So the following hypothesis can be formulated:

H7: The higher the Emotional attachment, the higher the Customer Loyalty to Bank NTB Syariah.

Conceptual Framework

Based on the background, problem formulation and relationship between the variables above, the conceptual framework of the research is as follows:

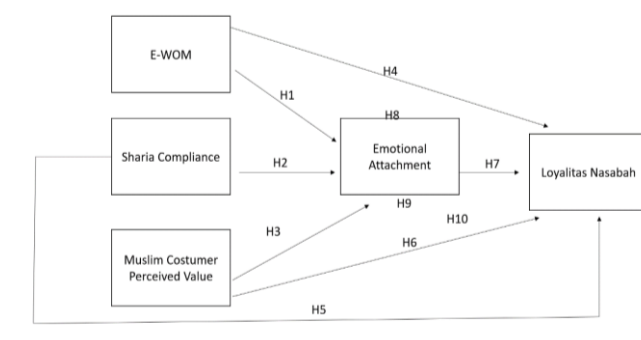


Figure 1 – Conceptual Framework

METHOD

This study used a quantitative approach. This study's type of quantitative research is causality research [24]. The population in this study is active customers of Bank NTB Syariah, which amounted to 170 respondents. The sampling technique in this study used non-probability sampling. The research sample criteria are 1) have been customers of NTB Syariah Bank for at least one year, 2) be at least 17 years old, and 3) be Muslim customers. The questions on the questionnaire will be measured using a Likert scale of 1-7. The questionnaire was given as a closed questionnaire and made in a Google Form. It was then distributed through social media and passed directly to Bank NTB Syariah customers.

The instrument quality test is the initial stage of validity and reliability tests. The research hypothesis was tested with a structural equation model (SEM) approach based on partial least Squares. Men dominated the characteristics of respondents in this study by 51.18% of the 170 samples. The most jobs are civil servants/army/police officers at 27.65% with an average income of IDR 3,100,000-5,000,000. Most respondents to this

study were 17-30 years old. Most educational backgrounds are bachelor's degrees – the moderate frequency intensity of transactions once a month. The validity test was conducted using a sample of 30 respondents.

Table 1 – Characteristics of Respondents

Characteristics	Description	Frequency	%
Gender	Male	87	51,18
	Female	83	48,82
Occupation	Students	10	5,88
	Civil Servants / Army / Police Officers	47	27,65
	SOE Employees	29	17,06
	Private Employees	32	18,83
	Entrepreneurs	22	12,94
	Others	30	17,64
Age	17–30 Years Old	102	60,00
	31–40 Years Old	34	20,00
	41–50 Years Old	21	12,35
	>50 Years Old	13	7,65
Monthly Income	< 1.500.000	15	8,83
		33	19,41

Characteristics	Description	Frequency	%
	1.500.000 – 3.000.000	46	27,06
	3.100.000 – 5.000.000	34	20,00
	5.100.000 – 8.000.000	19	11,18
	8.100.000 – 10.000.000	23	13,52
	>10.000.000		
Education	High School	41	24,12
	Diploma	17	10
	Bachelor	99	58,23
	Master's	13	7,65
Average Frequency of Transactions	Once a month	122	71,77
	Twice a month	31	18,23
	Three times a month	12	7,06
	Four times a month	2	1,18
	More than four times a month	3	1,76

RESULTS AND DISCUSSION

The main results are shown in Table 2.

Table 2 – Validity and Reliability Test Results

Indicator	Variable	Factor Loading	Composite Reliability	Average Variance Extracted (AVE)	Cronbach's Alpha
Electronic Word Of Mouth					
EWOM1	I often see Bank NTB Syariah information on Social Media	0.871	0.961	0.755	0.954
EWOM2	I often see people talking about Bank NTB Syariah on social media	0.881			
EWOM3	I often see reviews about Bank NTB Syariah on social media	0.889			
EWOM4	I often see positive comments about NTB Syariah Banks on social media	0.880			
EWOM5	I often get other people's recommendations about Bank NTB Syariah on social media	0.879			
EWOM6	I often see information about variations of Bank NTB Syariah products on social media	0.860			
EWOM7	I often see information about variations of Bank NTB Syariah products on social media	0.815			
EWOM8	I often see information on social media about the security of transactions at Bank NTB Syariah	0.876			
Sharia Compliance					
SC1	Bank NTB Syariah carries out its operations by sharia	0.897	0.959	0.770	0.950
SC2	Bank NTB Syariah products are sharia-compliant	0.890			
SC3	Bank NTB Svariah services are by sharia law	0.859			

Indicator	Variable	Factor Loading	Composite Reliability	Average Variance Extracted (AVE)	Cronbach's Alpha
SC4	Bank NTB Syariah has implemented a profit-sharing system	0.890			
SC5	Bank NTB Syariah products do not contain riba	0.884			
SC6	Bank NTB Syariah products do not contain uncertainty / unclear)	0.873			
SC7	Bank NTB Syariah products do not contain gambling	0.848			
Muslim Customer Perceived Value					
MCPV1	Bank NTB Syariah products are well-organised	0.840	0.960	0.653	0.956
MCPV2	Bank NTB Syariah products maintain quality	0.802			
MCPV3	Bank NTB Syariah products are well arranged.	0.802			
MCPV4	Bank NTB Syariah admin fees are affordable	0.790			
MCPV5	Bank NTB Syariah ATM fees are affordable	0.755			
MCPV6	Affordable admin and ATM fees are my main criteria in choosing Bank NTB Syariah products	0.751			
MCPV7	Using Bank NTB Syariah products makes people look positively at me	0.777			
MCPV8	Using Bank NTB Syariah products makes people think I sympathise with the welfare of others	0.739			
MCPV9	Many relatives, families relatives use Bank NTB Syariah products because access is easy to reach	0.812			
MCPV10	I feel at ease using Bank NTB Syariah products	0.857			
MCPV11	I feel happy using Bank NTB Syariah products	0.782			
MCPV12	My thoughts are positive when using Bank NTB Syariah products	0.862			
MCPV13	Bank NTB Syariah provides worship facilities for its employees and customers	0.768			
MCPV14	Bank NTB Syariah runs a Sharia-based business	0.807			
Emotional Attachment					
EA1	I have an emotional attachment to Bank NTB Syariah	0.855	0.920	0.743	0.883
EA2	Bank NTB Syariah has a positive impact with ease of transaction	0.754			
EA3	I feel connected to Bank NTB Syariah	0.931			
EA4	I feel attached to Bank NTB Syariah	0.896			
Loyalty					
L1	I recommend to relatives, family, friends/colleagues and others to use Bank NTB Syariah	0.911	0.944	0.808	0.921
L2	I am not interested in the products offered by other Banks	0.874			
L3	I wish to make regular transactions at Bank NTB Syariah	0.918			
L4	I am interested in using other products from NTB Syariah banks, such as saving, lending and investment	0.891			

Validity and reliability tests are also conducted here to assess research instruments. Validity indicates how well the results obtained from measuring instruments are based on the theories used to

define constructs. All variable question items have a loading factor value higher than 0.5 from the validity test results, so they are declared valid. In addition, the reliability test results above stated that

the value of Cronbach's Alpha (α) on the five variables was more than 0.7, so all variables were declared reliable. Emotional Attachment (Z) has an R-Square of 0.730. The value shows that the Emotional Attachment variable contributes influence as a mediating variable between EWOM, Sharia Compliance and Muslim Customer Perceived Value with Loyalty. The remaining 27% is influenced by other variables not studied in this study.

Discriminant Validity. Discriminant validity is used to ascertain the results of convergent validity. It occurs when two instruments measuring two predictive constructs do not correlate and produce an uncorrelated score. One of the methods used is the Fornell-Larcker criterium.

Tabel 3 – Fornell-Larcker Criterion

	EWOM	SC	MCPV	L	EA
EWOM	0.761				
SC	-0.005	1.000			
MCPV	0.572	0.100	0.816		
L	0.105	0.700	0.131	1.000	
EA	0.403	0.104	0.304	0.206	0.779

This study's discriminant validity value exceeds the correlation between latent constructs. This is by Fornel's criteria so that the results are valid and can be analysed further.

Hypothesis Test Results. The results of this test aim to see the significance of the influence of the independent variable on the dependent variable by looking at the value of the parameter coefficient and the significance value of the t-statistic. This test is carried out by calculating using PLS Bootstrapping according to the model below.

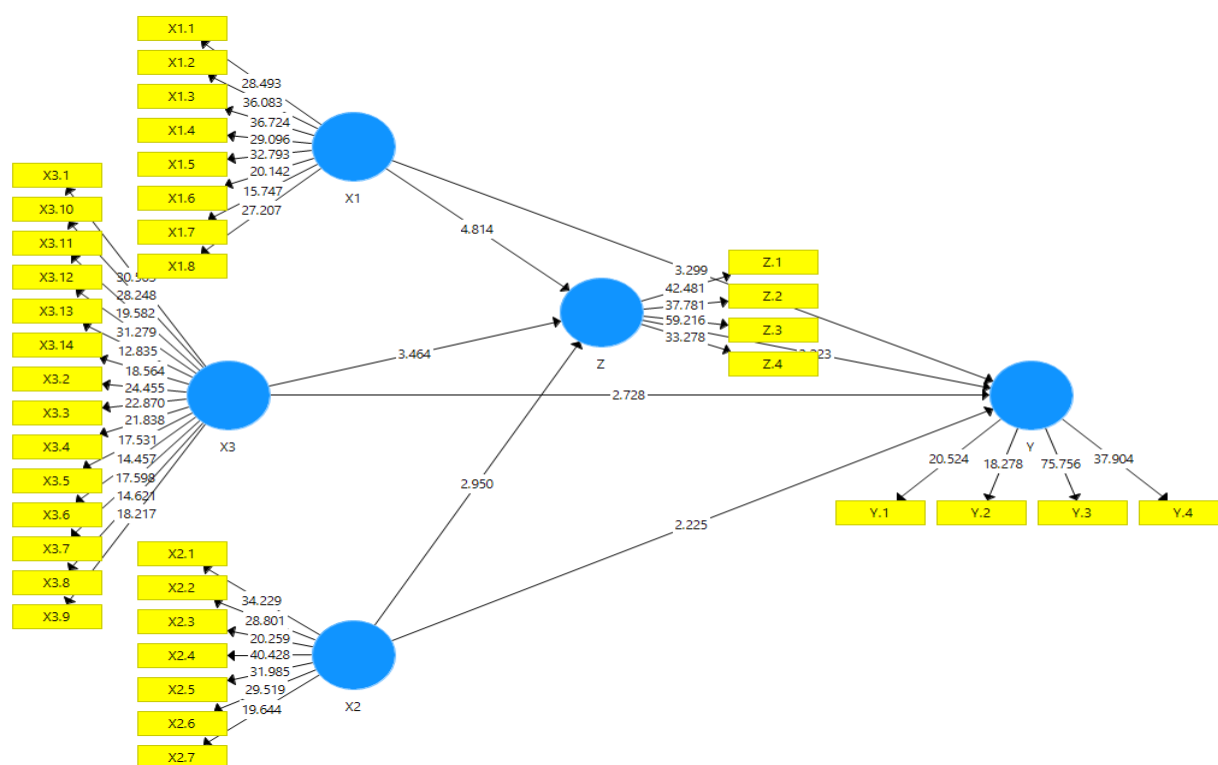


Figure 2 – Line Koefisen Model with PLS Bootstrapping

Table 4 – Interpretation of Hypothesis Test Results

Hypothesis	Influence Between Variables	Original Sample (O)	t-statistic	P-value	Description
H1	The Effect of e-WOM on Emotional Attachment	0.289	4.814	0.000	Significant
H2	The Effect of Sharia Compliance on Emotional Attachment	0.302	2.950	0.003	Significant
H3	The Influence of Muslim Customer Perceived Value on Emotional Attachment	0.192	3.464	0.001	Significant

Hypothesis	Influence Between Variables	Original Sample (O)	t-statistic	P-value	Description
H4	The Influence of E-WOM on Loyalty	0.289	3.299	0.001	Significant
H5	The Effect of Sharia Compliance on Loyalty	0.205	2.225	0.027	Significant
H6	The Influence of Muslim Customer Perceived Value on Loyalty	0.182	2.728	0.007	Significant
H7	The Effect of Emotional Attachment on Loyalty	0.290	3.223	0.001	Significant
H8	Emotional Attachment in Mediating the Effect of E-WOM on Loyalty	0.130	2.511	0.012	Significant
H9	Emotional attachment mediates the Effect of Sharia compliance on loyalty	0.087	2.427	0.016	Significant
H10	Emotional attachment mediates the influence of Muslim customer perceived value on loyalty	0.056	2.159	0.031	Significant

Based on the table above, it can be concluded that all hypotheses are accepted because they have significance below 0.05.

The Effect of Electronic Word of Mouth on Emotional Attachment. The results of this study show that the Electronic Word of Mouth has a positive and significant influence on Emotional Attachment, meaning that the better Electronic Word of Mouth, the higher the Emotional Attachment. Electronic Word of Mouth is defined as a means of communication through negative and positive suggestions that occur on the Internet [25]. The link between electronic word of mouth and emotional attachment is that a positive perception of a product or service will stimulate positive consumer memories to cause emotional attachment to the product or service. These results support research from [5], which concludes that Electronic Word of Mouth on Instagram makes it easier for consumers or potential consumers to get information, and there can even be an exchange of information.

The Effect of Sharia Compliance on Emotional Attachment. The results of this study show that Sharia Compliance has a positive and significant influence on emotional attachment, meaning that the better Sharia Compliance, the higher the emotional attachment. According to [18], Sharia Compliance is the adherence of Islamic banks to sharia principles. Sharia Compliance aims to ensure the application of sharia principles in banking institutions. The relationship between Shariah Compliance and Emotional Attachment, which refers to theory, has not been found much; even previous studies related to these variables are also minimal. Therefore, this is a novelty in this study.

The Effect of Muslim Customer Perceived Value on Emotional Attachment. The results of this study show that Muslim Customer Perceived Value

significantly influences emotional attachment, meaning that the better the Muslim Customer Perceived Value, the higher the emotional attachment. Muslim customer perceived value is defined as the customer value concept that aims to target Muslim consumers. According to [8], Muslim customers' perceived value is fundamental in describing Muslim consumer behaviour. Customer value has become the most critical area in management practices to attract customers after quality, satisfaction and loyalty [26]. The relationship between Muslim Customers' Perceived Value and emotional attachment, which refers to theory, has not been found much. Even previous studies related to these variables are also minimal. Therefore, this is a novelty in this study.

The Effect of Electronic Word of Mouth on Loyalty. The results of this study show that the Electronic Word of Mouth has a positive and significant influence on loyalty, meaning that the better the Electronic Word of Mouth, the higher the loyalty. The relationship between Electronic Word of Mouth and loyalty is that Electronic Word of Mouth can help disseminate product information to reach consumers outside of companies that have direct contact with consumers. Electronic Word of Mouth will create a positive image, making it possible to make repeat and loyal purchases. This result supports research conducted by [27], which states that the better the information obtained through EWOM, the more consumers will increase loyalty considering the data. Besides, the descriptive analysis of variables in this study also shows respondents stated that "content" is an important part and role in assessing information to make transactions at Bank NTB Syariah.

The Effect of Sharia Compliance on Loyalty. The results of this study show that Sharia Compliance has a positive and significant influence on loyalty, meaning that the better Sharia Compliance, the

higher the loyalty. The relationship between Sharia Compliance and loyalty is that companies implementing Sharia Compliance contribute to increasing consumer loyalty because Sharia Compliance as a Sharia banking identity can affect the company's image. These results support research [7], which states that Islamic banking builds a strong perception in the minds of its customers by providing the best service it has, one of which is by implementing Sharia Compliance. This aligns with the findings that respondents or customers stated that Bank NTB Syariah has applied Sharia principles (Sharia Compliance) in all its operations and transactions, making customers more loyal to Bank NTB Syariah.

The Influence of Muslim Customer Perceived Value on Loyalty. The results of this study show that Muslim Customer Perceived Value has a positive and significant influence on loyalty, meaning that the better the Muslim Customer Perceived Value, the higher the loyalty. Muslim Customer Perceived Value can be felt by customers when they receive products provided by service providers [6]. The link between Muslim Customers' Perceived Value and loyalty is because customer value has become the most critical area in management practices that aim to attract customers after quality, satisfaction, and loyalty [26]. These results support research [8] which states that customer assessment affects loyalty. In line with the statements of respondents or customers, Bank NTB Syariah has implemented Muslim Customer Perceived Values.

The Effect of Emotional Attachment on Loyalty. The results of this study show that emotional attachment has a positive and significant influence on loyalty, meaning that the higher the emotional attachment, the higher the loyalty. Dick & Basu (1994) stated that buyback will be better if customers have powerful positive feelings about a brand of product or service (Kotler & Keller, 2009). These results support research by Paramita (2016), which states that the emotional attachment of a brand affects customer loyalty, and emotional attachment is an essential variable in maintaining and increasing loyalty, motivating consumers to commit to using the same product. The findings of respondents stated that Bank NTB Syariah was quite attached to their hearts, making its customers more loyal.

Interaction Analysis (Mediation Regression Analysis). The emotional attachment variable partially mediates the relationship between the EWOM

and loyalty variables. When consumers receive good, complete information on social media, it will bring up consumer emotional attachment and indirectly make consumers more loyal to the product or service. In addition, this study can also show an indirect relationship between the Sharia Compliance variable and the loyalty variable mediated by the emotional attachment variable. When companies, especially banks, apply Sharia principles in every transaction, it will bring up consumer emotional attachment and indirectly make consumers more loyal to the product or service. The dynamic attachment variable partially mediates the relationship between the Muslim Customer Perceived Value and loyalty variables. When consumers have obtained values based on Sharia principles, it will bring up consumer emotional attachment and make consumers more loyal to the product or service.

CONCLUSIONS

Electronic word of mouth has a positive and significant effect on emotional attachment; the better electronic word of mouth is, the higher the emotional attachment for Bank NTB Syariah customers. Customers love being well-informed to increase their emotional attachment to services. Sharia Compliance has a positive and significant effect on emotional attachment; the better Sharia Compliance is, the higher the emotional attachment for Bank NTB Syariah customers. Customers like that their services or companies have applied Sharia principles. In addition, Muslim customers' perceived value positively and significantly affects emotional attachment. The better the Muslim Customer Perceived Value, the higher the Emotional attachment for Bank NTB Syariah customers because customers will compare the costs or efforts incurred with benefits to increase emotional bonding.

Electronic Word of Mouth positively and significantly affects loyalty; the better Electronic Word of Mouth, the higher the loyalty to Bank NTB Syariah customers. Customers become loyal because they feel they get good, complete, clear information. Sharia Compliance has a positive and significant effect on loyalty; the better Sharia Compliance is, the higher the loyalty to Bank NTB Syariah customers. Customers become loyal because the company they use has applied Sharia principles. Muslim Customer Perceived Value has a positive and significant effect on loyalty. The better the Muslim Customers' Perceived Value, the higher the loyalty to Bank NTB Syariah customers.

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Information and Communications Technology-Based Quality Management at Sekotong 1 Private Vocational School, Lombok Barat, Indonesia

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Abstract. This study aims to identify and describe quality management based on information and communication technology at SMP Negeri 1 Sekotong, West Lombok. This research uses a qualitative descriptive approach with a case study method. Data was collected using interviews, observation, and primary and secondary sources documentation. Data analysis techniques use interactive models consisting of data collection, data reduction, data presentation, and conclusion (verification), while data validity checking techniques use source and method triangulation. The results of the study show that 1) educational quality management planning is based on the needs and development of life skills, 2) coordinated organisation of software, hardware and Brainware, 3) the implementation of utilising the school information system based on job descriptions, 4) and supervision of the management of education quality management by the leadership on the performance and work processes of the school information system, facilities and infrastructure and human resources owned.

Keywords: Education quality; Quality management; Information and communication technology.

INTRODUCTION

Education is the key to progress. The better the quality of education held by a group of people or a country, the better the quality of that society or government. Law No 20 of 2003 states education is: "A conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious, spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and country".

The low quality of our education lies in the elements of our education system, namely human resources, curriculum, facilities and infrastructure, school management, education financing, and leadership, which need attention. Apart from that, external factors such as the economy not favouring education, low political participation, socio-culture, and the use of science and technology significantly affect the quality of education.

The dominant factors that influence and contribute significantly to the quality of education are

professional teachers, creative teachers, and highly motivated teachers. The problem with the use of ICT in education today is the lack of willingness of teachers to improve their competence during the current learning period, especially in mastering ICT. Meanwhile, the teacher is the driving force in the implementation of learning. The process of utilising ICT can help teachers' tasks so that teaching and learning activities both inside and outside the classroom become more effective. Therefore, teachers must master ICT to improve the quality of education to achieve 8 National Education Standards by Government Regulation No 4 of 2022.

From the results of the West Nusa Tenggara Education Quality Assurance Report for 2016-2020 concerning efforts to improve the quality of primary and secondary education, various breakthroughs have also been developed and adapted to global developments in the world of education. Regulations have been issued to encourage and ensure a better quality of education.

Based on the quality achievement data for the SNP at the SMPN level for West Lombok Regency

in 2020, according to 8 national education standards, the graduate competency standard is 5.86; the content standard is 5.4; process standard 5.01; educational assessment standard 5.88; standard of educators and education staff 5.87; standard of educational facilities and infrastructure 4.75; education management standards 5.43; and financing standard 5.1. School quality has not reached SNP 3.

In 2021, the education report card for West Lombok Regency can be seen from the results of the AKM achievements at the junior high school level, for literacy skills 1.55 below the minimum competency where the national achievement is 1.68; numeracy ability is 1.55 below the minimum competency where the national attainment is 1.62; character 1.98 needs to be developed where the national accomplishment is 2.05; the literacy gap is 2.67 there is no gap where the national achievement is 2.5; the numeration gap is three there is no national achievement gap 2.88; the character gap is 2.33 there is no gap 2.42.

Teacher skills in designing instruments for monitoring the fulfilment of the quality of secondary education units still need to be improved. This is because of compiled monitoring and evaluation tools. It is necessary to have a thorough understanding of the planning and implementation of meeting the quality of education units. Thus, teachers must be given more depth regarding how schools are doing to meet quality by the requirements of Government Regulation No 4 of 2022 concerning National Education Standards concerning 8 National Education Standards. These skills are beneficial for schools to improve quality fulfilment programs so that from year to year, the quality of schools will improve.

The skills of teachers in designing instruments for evaluating the fulfilment of the quality of secondary education units and carrying out measurements of the quality of education in educational units still need to be improved. This could be due to the teacher's understanding of quality compliance indicators that have yet to be comprehensively understood, so the instruments compiled have not fully met the bills to measure quality compliance. This needs to be paid attention to if the tools prepared are not appropriate or not appropriate so that they cannot provide an accurate picture of the achievement of quality fulfilment for national education standards. The instruments must be by the quality compliance indicators so that sources who meet the quali-

cations meet national education standards and their measurements [1].

The rapid development of technology at this time, especially in the world of education, which has entered 21st-century learning, demands various skills that must be mastered by every educator and education staff. Essential skills in the 21st century are still relevant to the four lives, which include learning to know, do, be, and live together [2]. The enormous impact of information and communication technology is significant for all human life in various fields. Many education providers still need to optimise information and communication technology, even though it is positioned as the basis of education management.

Today, information and communication technology (ICT) has become a fundamental requirement in an organisation, educational institutions, government agencies, companies, and the world of education. The role of ICT is as a learning aid, an educational management tool to achieve competency standards, support for academic administration and a storehouse of knowledge.

The education paradigm in Indonesia is currently leading to an information technology approach. This can improve the quality of education, especially for students. All these efforts are improving the quality of human resources capable of overcoming all kinds of life problems in society. As stated in Law No 20 of 2003, article 1 § 2 states the meaning of national education, which reads, national education is education based on Pancasila and the 1945 Constitution of the Republic of Indonesia, which is rooted in religious values, and culture Indonesia and responsive to the demands of changing times. Then, the functions and objectives of national education are contained in Article 3 of Law No 20 of 2003, which reads: "National education functions to develop capabilities and shape dignified national character and civilisation in the context of educating the life of the nation, aiming at developing the potential of students to become human beings who believe and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen".

In the last few years, the national exam for SMPN students has shifted from paper-based to computer-based (CBT) tests. This has consequences for enormous changes in answer accuracy, use of paper as raw material, time efficiency, and supervision efficiency. The questions in CBT make

it easier for students to work on questions that contain visualisation in tables, pictures and videos. Developing and using information and communication technology in education can improve education system reforms.

In one of the SMPNs in West Lombok Regency, located in a suburban school at the southern tip of the West Lombok Regency, namely SMPN 1 Sekotong, one of the programs is a digital-based school. Information and communication technology, abbreviated as ICT, can become the basis of the learning-based school management process. The use of technology at SMPN 1 Sekotong extends to all activities, including education management. The management applied in this school has implemented technology in its activities. Preliminary observations appear to be dominant in terms of student affairs, such as online Ramadan Islamic boarding schools with tadarusan, takziah and Quran khataman activities, as well as the availability of guardian communication forums on social media, websites, YouTube, Facebook, all of the above actions are based on information and communication technology. SMPN 1 Sekotong is a driving school and has a principal who is active as a teacher driving teacher and as an ambitious school.

To evaluate the quality of education, a school must have an education report card where this education report card can be used as the primary reference for analysis, planning and follow-up to improve the quality of education. From the results of the education report card at SMPN 1 Sekotong, which was held for the first time to replace the National Examination in 2021 which was carried out with the AKM (Minimum Competency Assessment), a new form of learning quality assessment rolled out by the government.

Information obtained by the community about SMPN 1 Sekotong comes from the media, which involves the role of information and communication technology. In the end, the convenience offered by information and communication technology is increasingly shifting conventional patterns that are considered tiring and have many shortcomings into a new era that is more dynamic and fast.

Many schools still need to utilise the ICT media to the fullest. Based on the explanation above, the researcher wants to examine information and communication technology-based quality management applied at SMPN 1 Sekotong, West Lombok.

METHOD

This study used a qualitative approach to produce descriptive data in the form of written words using the case study method. Information technology management at SMPN 1 Sekotong was studied qualitatively. Looking at the reality on the ground during the initial observations, it was discovered that there was an increase in implementing information and communication technology even though it was in a suburban area. There was a significant increase in enthusiasts, so the author wanted to determine how quality management was implemented at SMPN 1 Sekotong in West Lombok Regency, from planning, organising, and executing to monitoring. The research results are compiled, and theories are built based on the data. Sources of data are primary sources and secondary sources. When viewed in terms of methods or techniques, data collection is done by interviews (interviews), questionnaires (questionnaires), observation (observation), and a combination of the three. Data analysis was carried out before entering the field, while in the field, and after finishing in the area. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman. The analysis starts from formulating and explaining the problem before going into the field and continues until the research results are written. The data analysis technique in this study is an interactive model analysis from Miles and Huberman.

RESULTS AND DISCUSSION

Management of educational quality at SMP Negeri 1 Sekotong West Lombok has used ICT, which has contributed to achieving the success of school goals and school quality standards. With ICT-based education quality management, the quality of education is expected to prove quality output. According to several theories, the quality of ICT-based education is influenced by management information systems (MIS), facilities and infrastructure and human resources (HR).

Planning quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Based on the research results, the SIM planning process, in this case in the form of SISKO, was prepared and planned at a task division meeting at the beginning of the school year around July by holding a work meeting as a form of face-to-face group communication media that functions as a tool to reach consensus. For planning, the implementation of SISKO started in 2019 and continues to improve and is used to date. The planning process in the form of SISKO product trials has gone through a long stage, namely through several revisions to implement the product.

The IT team, who will operate SISKO, will produce responses in the form of a response questionnaire, which can be used as a basis for application development and revision to implement the application. Edits to the application went through three stages based on trial I, trial II and field trials, resulting in the final product of SISKO, which can be used today. SISKO was originally a simple application, but over time, it was developed according to existing needs.

For planning the quality of ICT-based facilities and infrastructure, the leader in the process of preparing the procurement of facilities and infrastructure analyses the number of needs with the ratio of users, in this case, the number of students, so that the existing facilities and infrastructure are felt to be lacking. Shortly, a process will be held to construct a new multi-storey building, as seen through the site plan displayed in the schoolyard. These development activities are expected to meet better standards of facilities and infrastructure. Planning for facilities and infrastructure also refers to educational facilities' quality, productivity, effectiveness and efficiency, which are the basic categories of infrastructure quality planning.

HR planning is an analysis and identification process of the need for HR. ICT-based HR planning starts with planning when the HR is still in education, considering that the existing HR, teachers and administrators are alums of the school. Habituation has been done by involving students in understanding how computers work. In ICT-based HR quality planning, namely identifying prospective HR, this shows that HR quality planning is like forecasting the future needs of workers/employees using appropriate information

sources, according to the vision and mission of SMP Negeri 1 Sekotong West Lombok.

After getting teachers/employees as superior human resources to facilitate access to various gadgets, the teacher/employee data is stored in the cloud system. In addition, the teacher/employee concerned will be included in the social media group to make information dissemination and coordination between teachers easier. The planning is made in a strategy with basic ICT-based processes and activities. This is to the opinion expressed by [3] that quality management in education is a way of managing all educational resources, which are directed so that everyone involved in them carries out their duties enthusiastically and participates in improving the implementation of work to produce appropriate services, even beyond expectations.

Leaders are obliged to continue to innovate from education, which, in this case, takes the role of technology and information to improve the quality of education management. This is similar to the opinion put forward by [4] that using technology and information systems, quality management systems, and culture significantly affects management performance. In addition, Terry's theory [5] also says that in planning, there is a must in every effort to develop related businesses or institutions. The planning activities will be uploaded to the cloud to be accessed via many gadgets anywhere and anytime. The note contains a collection of decisions on curriculum planning, SIM planning, HR planning, and infrastructure planning.

Planning based on ICT can be said to be of high quality because it is based on the need to develop students' life skills in the future. When these students face the world of work in Industry 4.0 and decide on plans, they are permanently stored and can be accessed via the Internet anytime and anywhere. So if the organising and implementation is carried out one day, planning access is more accessible. This is like Terry's theory [5] that planning can be considered a collection of decisions in a relationship where planning is regarded as an action to prepare for future activities by making decisions now.

Planning at SMP Negeri 1 Sekotong West Lombok is also in line with [6], in which the planning function includes setting organisational goals, establishing an overall strategy to achieve objectives and developing a general hierarchy of plans to integrate and coordinate activities. Leaders

show curriculum, SIM, HR, and planning for facilities and infrastructure based on the existing vision and mission.

From the research results above, ICT-based planning is a process that defines the goals of an organisation, in this case, an educational institution, which is carried out by creating strategies to achieve these goals. The system used is by utilising technology and information as well as human resources who understand the working principles of this technology.

Of the several planning theories, Terry's planning theory [5] is more contained in the planning process. Although other planning theories are also applied, Terry's view is closer to the planning process that occurs because Terry's idea includes the element that planning is an attempt to develop a business or develop an institution (in this case, an educational institution at SMP Negeri 1 Sekotong, West Lombok). So, the authors decided that the planning of SMP Negeri 1 Sekotong West Lombok used a theoretical approach from Terry.

Organising quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. SISKO organisation has fully utilised ICT, which began with forming an IT Team that handles all student activities related to teaching and learning activities, student discipline, curriculum, school infrastructure, etc. This is described because the application is operationalised in the hands of the IT team. Therefore, teachers who serve as IT Team members must be skilled in operating computers. The organisation of SISKO can be seen from the organisation of hardware and software for the development of SISKO itself. In terms of organising the users (brainwave) who will operate the SISKO, ICT is more visible in the competencies possessed by each user, where each user is skilled and proficient in working SISKO.

The organisation of facilities and infrastructure is contained in the organisational structure of the laboratory, which will later be directly responsible for all rooms with ICT devices. The organisation of infrastructure facilities is adjusted to the conditions of the space used for learning, so mobile projectors and laptops will be placed because the numbers are insufficient for the entire room. The laboratory room is used for software development, so computers with high specifications and wifi speeds of 100 Mbps are placed. There is no room available to repair damaged hardware,

In organising ICT-based HR, teachers/employees are divided into several duties and functions based on competence and ICT capabilities in the form of a detailed organisational structure into categories that look at competence and then categorised into several fields to form a quality organisational structure. There is a teacher service program for the first year where they are primarily members of the PAL (Accelerative Learning Program) tutoring group with direct tutors according to each PAL, and each teacher is included in the talents and abilities possessed and directly guided by senior teachers. This follows the opinion of [7] that organising is a division of tasks or work, division, and uniting.

In conducting studies and evaluations using ICT in the telegram application as the basis for effective communication in an organisation, competitive human resource development based on communicative chats in the telegram application is used for various studies and in-depth evaluation of the organisation that has been formed. This leads to the theory put forward by [5] that organising as an activity allocates all the work that must be carried out between work groups, establishes certain authorities and responsibilities of each responsible for each component, and provides an appropriate work environment.

From this description, the organisation of ICT-based quality management is a process of activities using technology, such as preparing organisational structures and goals. Infrastructure organisations must be fully ICT-based, but ICT is still used as media/tools to help store and measure room conditions and functions. By paying attention to the shape of the room in its organisation, the implementation of infrastructure facilities can be achieved by planning the quality of infrastructure and accelerating the service process to students.

The education organisation at SMP Negeri 1 Sekotong West Lombok is of high quality because it contains several aspects of quality improvement, one of which is carrying out transformations that, in this case, utilise technology. This can be seen in the results of decisions regarding organising uploaded content to servers in the cloud, using various kinds of social media, and managing existing resources based on ICT.

In addition, the organisation of the SIM in the form of SISKO, the organisation of human resources, and the organisation of infrastructure facilities are evaluated whenever there are defi-

ciencies by several parties who are competent and have direct contact with the management contained therein, resulting in continuous improvements to the ICT-based organising system. This also indicates that the education organisation at SMP Negeri 1 Sekotong West Lombok is high quality.

Implementation of quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Regarding implementing SISKO, which includes several activities, PPDB has implemented an online system. This is in line with the opinion expressed by [8] that an information system is a system that can be defined by collecting, processing, storing, analysing, and disseminating information for a specific purpose.

Implementing facilities and infrastructure that utilise ICT to be used for learning by facilitating the use of LCDs but in limited numbers, preparing for teacher learning needs, and the use of facilities and infrastructure related to the usage of SISKO because SISKO is inseparable from ICT tools, as well as facilitating students to take advantage of the computer laboratory to complete school assignments.

The rooms that provide ICT facilities and infrastructure are all supervised over the use of ICT facilities and infrastructure by the IT Team and the Head of the Laboratory, who is directly responsible to the Principal. The implementation of technology in management above, by the opinion expressed by [9], states that an information system is a component consisting of humans, information technology, and work procedures that process, store, analyse, and disseminate information to achieve an aim.

The implementation of HR quality is carried out based on job descriptions and respective duties and functions that have been determined and formed by the leadership, in this case, the school principal, which begins with the formation of an IT Team whose task is to take care of all student activities related to teaching and learning activities, student discipline, curriculum, parenting - competence in the field of ICT. In addition, in practice, there are various efforts to increase the competency of human resources, including training, career development, and performance appraisal, and provide ICT job challenges to increase self-competence so that it can be said that ICT has an impact on Existing human resources at SMP Negeri 1 Sekotong, West Lombok.

Improving the quality of human resources is an important step taken so that ICT significantly impacts human resources who can develop programs or applications for their own needs. 99% of the existing teachers can operate computers well for Word, Excel, and e-mail, and it can be seen that students are used to working with SISKO.

The implementation of educational quality is to the opinion expressed by [10] that acting is an activity that includes determining and satisfying the needs of its employees, rewarding, leading, developing, and providing compensation. Based on the description of the research results above, implementing ICT-based education quality management is an activity to mobilise all tools in the form of SIP and infrastructure related to ICT. These resources are owned to work to achieve the desired goals.

Implementing education at SMP Negeri 1 Sekotong West Lombok also leads to Terry's theory [5], where the leader tries to move group members in such a way that they want and try to achieve the goals set. This can be seen in the implementation of education, which is processed from the process of quality planning and quality organisation, which also uses ICT, and the output is also in the form of ICT processed with ICT components.

Supervised quality management based on information and communication technology at SMPN 1 Sekotong West Lombok. Supervision has the main tasks and functions of coaching, monitoring, and development oriented towards the quality of education. SIM quality control in the form of SISKO, whether carried out by the Head of School, Deputy Head of Curriculum/Head of the IT team, or the head of the laboratory, has yet to implement ICT as a basis for supervision. SIM is essential in collecting, processing, storing, analysing, and disseminating data, so monitoring the SIM work process needs to be done. Supervision is carried out in manual monitoring, both in terms of using SISKO, monitoring operator work, surveying damage to both hardware and software and monitoring feature development. Through the Wakasek, the Principal ensures that SISKO's work is by its functions.

The supervision carried out on the application of SISKO includes decisions on the resulting output as well as oversight of the maintenance of facilities and infrastructure, which must be carried out every day, every week, every month and eve-

ry year to find out the damage to computer equipment. The Principal makes important decisions and policies regarding the results of the supervision.

Supervision is carried out through reports received directly from the chairman of KMI, who routinely supervises and monitors the recapitulation of daily, monthly, and annual activities contained in SISKO. Facilities and infrastructure quality supervision has yet to utilise or use ICT fully. Utilisation is seen only in recording assets or inventory regarding the number of facilities and infrastructure and in typing monthly reports regarding the condition of the computer laboratory and all computer laboratory utilisation activities. Supervision aims to ensure that all facilities and infrastructure are always in good condition and prevent these facilities from being damaged. Maintenance includes all continuous efforts to keep the equipment in good condition.

Supervision of facilities and infrastructure determines matters relating to facilities and infrastructure through considerations and the overall results of the supervisor's report, in this case, the Head of School. Supervision of facilities and infrastructure related to ICT, both hardware and software, is under the coordination of the head of the laboratory, especially students who want to use ICT infrastructure, so that it is effective in its implementation. The head of the laboratory will report to the head of the school regarding the condition of the ICT devices, which are under the responsibility of the director of the laboratory and report any incidents of use of the computer laboratory. If damage occurs, it can be dealt with immediately.

Every component of facilities and infrastructure, especially those related to computer equipment, functions effectively and efficiently to achieve educational goals. Supervision of the facilities and infrastructure at SMP Negeri 1 Sekotong West Lombok is an effort to maintain and make the best use of the facilities for the success of the learning process, which is carried out on an ongoing basis. Supervision of facilities and infrastructure carried out at SMP Negeri 1 Sekotong West Lombok is the opinion carried out by [11] that it is the responsibility of the school principal to carry out inspections and corrections to the condition of the room and all the facilities and infrastructure contained therein.

Every Principal has a strategy for supervision. The supervisory system is determined to determine the performance of human resources

owned. With this supervision, the Principal can evaluate the entire process according to the plan that has been prepared. Management of human resources owned by SMP Negeri 1 Sekotong West Lombok is in the form of performance on job descriptions and their respective duties, especially in teaching and learning activities for teachers in fulfilling obligations as an educator. HR supervision has yet to utilise ICT in the process. Maintenance is carried out by monitoring the performance of human resources directly by maximising their potential. The use of ICT is only seen in the coordination between the teacher and the Principal using social media groups.

Coaching activities are carried out through a persuasive approach for teachers/staff who should do their duties differently. Strict action can be taken if various efforts to improve human resources are carried out. Oversight of ICT-based quality management is a process to ensure that all activities carried out are what was previously planned. In this case, ensuring that SISKO, facilities, infrastructure, and human resources are working as they should is essential.

Supervision activities at SMP Negeri 1 Sekotong West Lombok include a) observing the performance of all employees, b) coaching employees, c) tracking the relevance of work to planning, d) controlling the quantity and quality of work, e) effectiveness implementation of activities, and f) efficient use of the budget. Besides that, the theory put forward by [5] is that supervision is considered an activity to find correct deviations in the results achieved from the activities carried out and those planned [7].

Supervision that is carried out also leads to Robbin's theory [6], where supervision is a process of determining what work has been done, assessing it, and correcting it, if necessary, with the intention that the implementation of the work is by the original plan. However, what happened to the supervision of education at Sekotong 1 Public Middle School was more in the direction of Terry's [5] opinion because Terry covered the process and focused on implementation objectives.

CONCLUSIONS

ICT-based Education Quality Planning already uses ICT as seen in SIM planning, Human Resources and Planning Facilities and Infrastructure because ICT functions as the basis for specification information needed in the categories of each of these facilities. Quality planning entirely

based on ICT is contained in the SIM planning in the form of the SMPN 1 Sekotong Information System (SISKO), which is self-made and developed by utilising the human resources it has to develop students' life skills. ICT-based quality education organisations have begun to be seen using ICT, although only in some of their activities. This activity can be seen from the IT team operating SISKO, utilising Microsoft Word to arrange job descriptions and coordinate social media groups on software, hardware, and software. ICT-based quality education has used and enabled ICT as a basis for exemplary performance of Informatics subject learning, Computer-Based

National Assessment, and New Student Admissions, which have implemented an online system. ICT-based education quality management has the main objective of focusing activities on the use of computers to transform knowledge developing human resources based on predetermined job descriptions. The key to successful management is the monitoring process. If the control process goes well, other management functions will also be good, and vice versa. Quality control at SMPN 1 Sekotong West Lombok has yet to utilise or use ICT fully. Even so, the leadership's supervisory process was running as it should.

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Stages of Analysing the Characteristics of Education Units Implemented by SDN 40 Ampenan and SMPN 7 Mataram, Indonesia

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Abstract. This study aimed to determine the stages of analysing the characteristics of education units implemented by SDN 40 Ampenan and SMPN 7 Mataram. This research method uses qualitative research methods. The data used in this research is qualitative. The data collection techniques used in this research are observation, interview and document/documentation study. In this research, the data analysis technique used is the descriptive qualitative data analysis technique of the interactive model "Miles & Huberman", which consists of four stages: data collection, data reduction, data presentation, and conclusions. The results showed that the analysis of the characteristics of education units carried out at SDN 40 Ampenan and SMPN 7 Mataram analysed students' factors using cognitive and non-cognitive diagnostic assessments. The form and format of the check used by teachers in both schools differ depending on the level or class taught, such as grade 1 and grade 4. The form and content of the assessment are different. The review results then become the teacher's reference in designing methods and learning strategies and preparing teaching materials to support the differentiated and learner-centred learning process by the learning principles of the independent curriculum.

Keywords: Characteristics; Education units; Qualitative.

INTRODUCTION

The curriculum is one of the most essential parts of education [1]. The curriculum is the raw material for learning in educational units that contains content, methods, strategies and evaluation of learning so that it becomes a determining factor for the quality of education [2, 3]. The Ministry of Education, Culture, Research and Technology implemented a new strategy to change the national curriculum. The curriculum offered by the Ministry of Education and Culture is called the independent curriculum. The independent curriculum is implemented in stages, starting with implementation in a small number of schools designated as driving schools through the selection stage [4]. Then, the target of its application is to expand to schools that are not going schools through independent pathways. Marks that will apply to the independent curriculum are determined through registration opened by the Ministry of Education and Culture.

The Merdeka Curriculum was first implemented in the Mobilization School Program. This limited implementation involves private and public lev-

els such as PAUD, SLB, SD, SMP, SMA and SMK. The findings from the study show that several good practices occur both in schools with adequate facilities and in several schools with limitations. The results show that the Independent Curriculum encourages teachers always to provide pro-student learning strategies. Flexibility in teaching and developing learning strategies in the Independent Curriculum provides space for teachers to implement pro-student contextual learning [5]. A flexible curriculum will hone students' creativity and can improve learning outcomes [6].

The strategy for implementing the Independent Curriculum in Mobilizing Schools and Independent Tracks has differences. In Mobilizing Schools, the Government was assisted by Facilitators for three years. For independent pathway schools, the emphasis is on implementing them by studying independently through learning resources provided by the Ministry of Education and Culture.

Based on the results of observations and literature studies conducted, data related to the inde-

pendent curriculum, that there were several significant changes to the previous curriculum, including [6]:

- 1) change of Core Competencies and Basic Competencies into Learning Outcomes (CP);
- 2) changes in the status of subjects, namely that English is increasingly recommended to be taught at the elementary level, Natural Sciences and Social Sciences (IPAS) topics at the Elementary school level, informatics subjects become compulsory subjects at the Junior High School level, and local content can be developed in a more diverse form;
- 3) learning is divided into two, namely extracurricular and co-curricular, in the form of projects to strengthen the profile of Pancasila students. Co-curricular learning is allocated as much as 20-30% of the total hours of study for one year;
- 4) The authority of the education unit to develop an operational curriculum;
- 5) the use of phases, which are defined as the period to achieve the targeted competencies;
- 6) flexibility in preparing learning implementation plans (RPP can be used daily, three days, or even for one week);
- 7) the implementation of learning differentiation, namely differentiation in learning methods, differentiation in learning products and differentiation in learning content by the talents, interests and potential of students.

The changes made to the independent curriculum based on the above data are significant and require qualified time, effort and competence from all parties involved in the school, especially the principal and teachers. In the independent curriculum, many educational units are given freedom and flexibility in compiling several things, such as operational curricula, setting learning objectives, collecting teaching tools, determining learning time allocations, and so on [4]. The flexibility emphasised in the Independent Curriculum concept represents a variety of understandings for teachers and principals, so confusion and misconceptions arise in implementing the independent curriculum [7]. A disorder that occurs includes organising extracurricular and co-curricular learning (projects to strengthen Pancasila student profiles), establishing learning objectives (known as ATP), preparing teaching modules according to the needs and characteristics of students, preparing lesson

plans, etc. This confusion is often conveyed by teachers at seminars or webinars held by the NTB Mobilization Teacher Center as UPT Kemdikbudristek, which has one of the primary duties and functions in implementing the Independent Curriculum Implementation Program.

In implementing the independent curriculum, one of the steps that schools must carry out is to develop an Education Unit Operational Curriculum (known as KOSP). This KOSP is a development of an independent curriculum structured based on school characteristics. In the KOSP, the school describes the vision and mission, which is then supported through learning programs prepared by the school by emphasising flexibility according to students' needs, interests and talents and the availability of natural and human resources around the school. As stated by [8] in their research, assessment and planning are needed in school development efforts to determine the goals to be achieved, the programs to be implemented, the parties involved, the resources required and the work steps to be carried out.

Schools' flexibility in developing an operational curriculum means that each school implementing an independent curriculum will have different patterns and strategies for implementing a separate curriculum in their respective schools. Based on these facts, the author feels the need to research the implementation of the independent curriculum for schools that implement it through separate channels to explore how the performance of the independent curriculum is carried out. It is hoped that the results of this research will provide an overview and strategies that can be adopted by other schools that also apply the independent curriculum. Based on the data, 3,292 schools are implementing IKM-independent pathways in NTB.

METHOD

This research method uses qualitative research methods. Qualitative research is an approach used to explore and understand the meaning of individuals or groups in looking at a problem. The research was conducted in SD Negeri 40 Ampenan and SMP Negeri 7 Mataram, both schools implementing the independent curriculum.

The research subject is SD Negeri 40 Ampenan. The research issues at SD Negeri 40 Ampenan were the curriculum development team, the

school principal, grade 1 and grade 4 teachers, and representatives of grade 4 students who were the target of the Independent Curriculum. In addition, the subject of this research is SMP Negeri 7 Mataram. The study subjects at SMP Negeri 7 Mataram were the curriculum development team, grade 7 teachers, and representatives of grade 7 students who were the targets of the Independent Curriculum.

The data to be used in this research is qualitative data. Qualitative data is in the form of data obtained from interviews, observation and analysis of documents. The sources of data in this study are primary and secondary data. Preliminary data is data obtained by researchers through direct observation and interviews. The secondary data is in the form of documents supporting research, namely the education unit curriculum, learning implementation plans, children's work, documentation or photos of activities and other relevant records.

Data collection techniques used in this study were observation, interviews, and document/documentation studies. In this study, the data analysis technique used was the qualitative descriptive data analysis technique of the interactive model Miles & Huberman.

RESULTS AND DISCUSSION

The analysis of the characteristics of the educational units carried out at SDN 40 Ampenan and SMPN 7 Mataram is to analyse the characteristics of students. Two stages of research are used, namely, a cognitive diagnostic assessment and a non-cognitive diagnostic assessment.

Student Cognitive Diagnostic Assessment. The teacher designs the cognitive assessment referred to by the informants to explore information related to students' cognitive abilities. This assessment is arranged based on subjects. As stated by informants at SMPN 7 Mataram, as follows:

"The first thing we did was carry out an initial diagnostic assessment during the MPLS during the introduction to the school environment. On the second day, we collaborated with the counselling teacher. Previously, we had prepared initial cognitive questions, such as the difficulty level. The problem is taking lessons from grade 4 and grade 5 elementary school that they have learned".

The statement explains that SMPN 7 Mataram conducts an initial diagnostic assessment to gather information about students' knowledge and competencies at the start of new student admissions. This statement is also corroborated by the word of the class 7 student informant at SMPN 7 Mataram as follows:

"Yes, there was a question about student profiles using the same form as questions anyway".

What these students mean is that students are given a form to fill in and explore information about the data or profile of each student and a list of questions or questions related to specific subjects. What was conveyed by the informant was corroborated by the following documentary evidence.

The same thing was done at SD Negeri 40 Ampenan. The teacher analysed student characteristics by gathering information using cognitive assessment data, as conveyed by the informant, namely the teacher, as follows.

"We select reading first, letters first, note who can and does not know letters".

In addition, other teacher informants also conveyed the following:

"Yes, you can immediately find out if you have a hobby. If you have a background, there is a questionnaire, a kind of biographical data, about the parents' jobs and their impressions of their environment. Questions and answers just distributed the questionnaire and analysed it, oh most of these students like this sport and so on".

From the statements of the two teachers, it was confirmed that an analysis was carried out first to explore data and information about the characteristics of students related to their knowledge and competencies. This is reinforced by the statements of other informants as follows.

"Yes, we at school do an assessment, hmmm, an analysis by looking first at scientific disciplines then oriented towards individual development, access to interests by the surrounding environment and is a technological curriculum because we also received chrome book assistance from the Mataram city education office".

The informant said that an analysis was carried out regarding the knowledge and competence of students, teachers, and other PTK in schools while also paying attention to the availability of facilities and infrastructure owned by schools.

From the researchers' observations in the learning process, students sat in groups. The teacher arranged this group based on the results of a cognitive assessment by looking at the level of student understanding.

Assessment Student Non-Cognitive Diagnostics. Non-cognitive assessment assesses students to dig up information about students beyond the knowledge of specific subjects such as learning styles, hobbies, family environment, and others, as stated by an informant from SD Negeri 40 Ampenan.

"Yes, we at school do an assessment, hmmm, an analysis by looking first at scientific disciplines then oriented towards individual development, access to interests by the surrounding environment and is a technological curriculum because we also received chrome book assistance from the Mataram city education office".

The informant said that in addition to analysing the knowledge and competence of students, it was also analysed related to the learning environment that was by the surrounding environment. Also conveyed by teacher informants related to exploring data and information about students as follows.

"Yes, you can immediately find out if you have a hobby. If you have a background, there is a questionnaire, a kind of biographical data, about the parents' jobs and their impressions of their environment. Questions and answers just distributed the questionnaire and analysed it, oh most of these students like this sport and so on".

The teacher carries out non-cognitive assessments through discussions with parents or guardians of students and meetings with previous homeroom teachers regarding the condition of students. Apart from discussing the students' characteristics with the parents and guardians beforehand, the teacher distributed a questionnaire to determine the students' parts.

As stated by the teacher informant, a non-cognitive assessment was also carried out at SMP Negeri 7 Mataram.

"Yes, for those who are non-cognitive, we use the application. I'm smart enough to see learning styles; they use cell phones. We also work with psychologists. Each student has complete data with diagnostic results".

Class 7 at SMP Negeri 7 Mataram conducted a non-cognitive assessment to see student charac-

teristics such as learning styles and others using an application, namely the "I'm Smart" application. This application is available on the internet and can be used by teachers freely to explore student learning style data. The document analysis results of the following student non-cognitive diagnostic assessments corroborate this. A psychologist appointed by the school carried out this non-cognitive diagnostic assessment analysis. The test used by the psychologist also uses the "I'm Smart" application to analyse student learning styles.

Discussion with Guardians. The discussion with the student's guardian in question is related to all matters relating to students. It aims to collect data and information about students. This was conveyed by teacher informants at SMP Negeri 7 Mataram as follows:

"For parents from the committee, we establish communication through the FORTUNA group forum for parents and children".

Teachers use the WhatsApp application to communicate and discuss topics related to child development with parents. The school also sought information about the parents' profiles as conveyed by the 7th-grade students at SMPN 7 Mataram.

"Yes, I was asked what job, how much salary do you have in one month?"

This information is explored to find out the students' environment at home. A similar statement was also made by an informant at SDN 40 Ampenan as follows.

"In the big team, we invite committees and active parents who often come to school. Even though they come to pick them up, it's the parents who are concerned, and there are discussions".

Discussions with parents or students at SDN 40 Ampenan were carried out both formally and informally when parents picked up their children so that there was mutual information from both the parents of the students and the school. This was also conveyed by the following teacher informant at SDN 40 Ampenan.

"Yes, parents are also active. They often communicate. Please help. My child is lacking here".

The slightest information from parents becomes input or data for teachers.

According to [9], to set school goals, it is necessary to identify contemporary problems, such as

students' knowledge, abilities, and attitudes, to assist schools in planning what philosophy is the basis for designing school goals. Meanwhile, Tyler put forward three factors to be considered in determining the purposes of education in schools, namely: 1) The needs and interests of students, 2) contemporary life analysis (community life experiences and community values and 3) particular knowledge/subjects. As for the research results described in CHAPTER IV, SDN 40 Ampenan and SMPN 7 Mataram have implemented the abovementioned three things with the following explanation.

SDN 40 Ampenan and SMPN 7 Mataram identify students' needs and interests through non-cognitive diagnostic assessments. Diagnostic assessment is an assessment that aims to determine the initial abilities and initial conditions of students. The non-cognitive diagnostic assessment is an assessment that seeks to select the psychological and social-emotional state of students and define the shape of the family and environment of students at home [10]. The non-cognitive diagnostic assessment by SDN 40 Ampenan and SMPN 7 Mataram is as follows.

SDN 40 Ampenan conducted a non-cognitive diagnostic assessment to determine students' psychological state related to learning interests. The teacher uses an evaluation in the form of a list of questions to be answered by students. Diagnostic non-cognitive assessments are carried out at the beginning of the semester to map students' initial conditions. The results become the teacher's reference in designing intra-curricular, co-curricular and extracurricular learning. By mapping students' learning interests, the teacher uses differentiated learning per the guidelines in implementing the independent curriculum, then arranges project activities according to children's interests and for mapping extracurricular programs.

SMPN 7 Mataram conducted a non-cognitive diagnostic assessment to find out the psychological state of students related to students' learning styles, IQ, etc. In carrying out non-cognitive diagnostic assessments, the teacher works with psychologists. The evaluation is compiled and analysed by a psychologist. The results are then reported to the teacher for intervention in school learning programs. The non-cognitive diagnostic assessment was carried out during the introduction to the school environment for grade 7.

Analysing community life and community values in the environment around the school was carried out by SDN 40 Ampenan and SMPN 7 Mataram through discussions with parents of students and observing students' daily habits and the atmosphere around the school. For example, at SDN 40 Ampenan, the school directly observed that the climate in Sekarbela is known for its religious community. Besides that, most parents work as traders, so several school programs are linked to the culture in that environment. At SMPN 7 Mataram, the school environment is known for its students' diversity, so its agenda adapts to the cultures that suit students.

A cognitive diagnostic assessment measures students' ability in certain subjects initially. Cognitive diagnostic assessment is an assessment that aims to determine student competency achievements, adapt classroom learning to the average student competency achievement results and provide additional services for students with below-average competence [10].

SDN 40 Ampenan conducts a cognitive diagnostic assessment for grade 4 by giving questions to students according to the subject matter, while for grade 1, reading, writing and arithmetic tests are carried out because, in grade 1, listening ability is the primary key for students to understand the subject matter. The assessment was carried out at the beginning of semester I. The evaluation was designed and analysed by the teacher himself, and then the results of this cognitive diagnostic assessment became the teacher's reference in providing further learning services.

SMPN 7 Mataram conducts a cognitive diagnostic assessment for grade 7 using questions or a list of questions about the subject matter in elementary schools in grades 4-6 to measure students' knowledge of certain subjects. Each subject taught at school is subject to cognitive assessment first. The review was carried out at the beginning of semester 1. The evaluation was designed and analysed by each subject teacher. All subjects carried out an initial assessment.

According to [9], identifying school goals will determine the school's learning philosophy. By analysing the characteristics of the educational unit, which is carried out through diagnostic assessments on students, it can be concluded that SDN 40 Ampenan and SMPN 7 Mataram use the philosophy of progressivism in learning, which argues that education should be child-centred and not focussed on the teacher. This is shown by

how teachers provide services to children, such as conducting diagnostic assessments to design learning according to students' talents, interests and characteristics using group learning strategies by looking at the diversity of students' abilities.

CONCLUSIONS

The form and format of the evaluation used by the teachers in the two schools differed depend-

ing on the level or class being taught, such as grade 1 and grade 4, which differed in the form and content of the assessment. The assessment results then become the teacher's reference in designing learning methods and strategies and preparing teaching materials to support a differentiated and learner-centred learning process by the principles of learning in the independent curriculum.

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Legal Problems of Law No 20 of 2003 Concerning the National Education System, Indonesia

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Abstract. Law No 20 of 2003 concerning the National Education System ideally regulates all education system components to realise educational purpose. However, Law No 20 of 2003 still shows legal problems in handling various parts of the national education system. The issues in question are, of course, the focus of a critical study to immediately get a solution for improvement and refinement. Therefore, research on the legal problems of Law No 20 of 2003 concerning the National Education System is being conducted. This research is normative legal research with a statutory approach. The study results indicate legal problems with Law No 20 of 2003 in the form of ambiguity and conflict of norms.

Keywords: Legal Problems; National Education System; Law

INTRODUCTION

Law No 20 of 2003 concerning the National Education System is a law established by the Government of the Republic of Indonesia to improve the previous Law, namely Law No 2 of 1989 concerning the National Education System. Law No 20 of 2003 is undoubtedly expected to be a more precise and comprehensive guideline in directing all components of the national education system to realise the goals of national education.

The purpose of national education is constitutionally emphasised in Article 31, § 3 of the 1945 Constitution of the Republic of Indonesia, namely increasing faith and piety and noble character in the context of the nation's intellectual life. In this case, Law No 20 of 2003 ideally regulates all education system components to realise these educational purposes. However, Law No 20 of 2003 still shows legal problems in handling various parts of the national education system.

Legal problems of Law No 20 of 2003 can be void, unclear, or conflicting norms. One example of the ambiguity of models can be found in the standards regarding the curriculum, namely Article 37, §§ 2-3, which regulates the compulsory content of the curriculum at the levels of primary education, secondary education, and higher edu-

cation. In this provision, it is stated that one of the mandatory contents of the curriculum is language. It is not clear what language is meant. This, of course, can lead to multiple interpretations and legal uncertainty. Therefore, the study of the legal problems of Law No 20 of 2003 with the National Education System is essential to find a solution for its improvement and refinement immediately.

METHOD

The study of legal problems of Law No 20 of 2003 concerning the National Education System is normative legal research. The author [1] suggests that normative legal analysis finds the rule of Law to answer legal problems. In this study, a search was conducted on Law No 20 of 2003 and other related laws and regulations to find legal issues related to Law No 20 of 2003 and provide a solution for improvement. The approach used is a statutory approach, which uses legislation and regulations [2].

RESULTS AND DISCUSSION

Obscurity of Norms in Law No 20 of 2003. Based on the results of a study of Law No 20 of 2003 concerning the National Education System, it was

found that there were legal problems with it. One of the forms was the existence of a vague norm/blur norm, a situation where the model already exists but does not have a clear meaning or has more than one meaning that makes the standard vague or unclear. The norms referred to can be seen in Table 1.

Table 1 – Norms in Law No 20 of 2003 that Obscure

No	Chapter	Substance
1	Article 1, No 5	Definition of education personnel
2	Article 1, No 6	Definition of educators
3	Article 37, §§ 1-2	Compulsory content of the curriculum at the elementary, secondary, and higher education levels
4	Article 39, § 2	Educator's duties
5	Article 40, §§ 1-2	Rights and obligations of educators and education personnel
6	Articles 67–71	Criminal provisions

Table 1 above shows the existence of several norms in Law No 20 of 2003, which is obscure/unclear. *First*, Article 1 point 5 emphasises that "Educational personnel are members of the community who are devoted and appointed to support the implementation of education". The definition of educators in the article does not describe the ideal figure of educators who are the elements of the national education system that affect the achievement of national education goals.

As an element of the national education system, educators are not members of the general public who only support the implementation of education but are people with qualifications and competencies that support the performance and achievement of national education goals.

Confirmation of the ideal figure of educators in the formulation of the notion of educators is significant considering the current incompetence of educators, both in terms of professional competence, namely mastery of the field of science according to the type of work handled, as well as exemplary personal and social competencies by students. Therefore, suggestions for changes to

the formulation of Article 1 No 5 are "Educational personnel are people who have the qualifications and competencies to support the implementation and achievement of educational purposes".

Second, Article 1 point 6 states that: "Educators are educational personnel who are qualified as teachers, lecturers, counsellors, tutors, tutors, instructors, facilitators, and other designations according to their specificity, and participate in the administration of education".

This provision belongs to the category of obscure norms because it does not clearly describe the ideal educator figure. In addition, it can also confuse educators because it defines educators as educational staff, which are two terms always distinguished in various other norms. For example, Article 39, §§ 1-2 of Law No 20 of 2003. Paragraph 1 stipulates the duties of educational staff, and § 2 defines the responsibilities of educators. In these provisions, it is clear that the two have different tasks.

In this regard, it is necessary to emphasise educators' understanding of the ideal and different educator figures from education staff. Therefore, suggestions for improving Article 1 § 6 are "Educators are people who have qualifications, competencies, and certifications as teachers, lecturers, counsellors, tutors, tutors, instructors, facilitators, and other designations according to their specificity, and participate in the implementation and achievement of educational purposes".

Confirmation of the notion of educators as above is significant because educators are one element of the education system that dramatically influences the achievement of educational goals. Authors [3] found that the teacher is the component that most determines the quality of education. In this case, educators are not people who only have qualifications and participate in implementing instruction but must have qualifications, competencies, and certifications to carry out their educational responsibilities. The author [4] suggests that educators are entrusted with educating.

Third, Article 37, §§ 1-2, which regulates the mandatory content of the curriculum, one of which is in sub c, namely language. The word language certainly has a general meaning and can be interpreted differently. It can be Indonesian, regional, or foreign languages. Therefore, in order not to cause multiple interpretations, it is essential to emphasise the language in question, namely, the Indonesian language. This is by the

principle of forming laws and regulations, as stated by [5] among others: the sentence chosen should be absolute, not relative, and the Law should not be argumentative/debatable.

Fourth, Article 39, § 2 affirms that "educators are professionals in charge of carrying out the learning process, assessing learning outcomes, conducting guidance and training, as well as conducting research and community service, especially for educators in higher education". The norm is blurred because of the sentence "especially for educators in higher education". This sentence gives educators an unclear task outside tertiary institutions to conduct research and service. This is not one of the principles of legislation put forward by [5]; namely, the Law should not confuse the subject matter with exceptions and limitations.

Fifth, Article 40, § 1-2. Paragraph 1 regulates the rights of educators and education personnel. Paragraph 2 governs the obligations of educators and education staff. These norms are vague because

1) their structure, which regulates rights and obligations, is not systematic and logical. Rights are held in § 1, and responsibilities are regulated in §2. It should handle duties first, then rights, because rights are a consequence of implementing obligations.

2) the difference between the obligations and rights of educators and education staff, even though educators and education staff have different tasks;

3) the use of words that are not systematically different but have the same meaning.

It is contained in §1 point e., "the opportunity to use educational means, infrastructure and facilities to support the smooth implementation of tasks". The use of the word's facilities, infrastructure and amenities should be systematised and simplified into the use of infrastructure and facilities because amenities have the same meaning as facilities.

The selection of words, as well as the sentence structure as suggested above, is a necessity in the formation of a statutory regulation because it is part of the principle of forming legislation, as stated by [5]; namely, the style of language must be solid (simple). This principle is a guide in developing Law in view [6].

Sixth, Articles 67–71 regulate the length of the sentence, the formulation of which uses one of the systems, as stated by [7], namely the indefinite sentence system in the form of threats of the length of the sentence to the maximum.

The regulation on the length of the sentence, which only regulates the maximum limit, also shows the ambiguity of the norm because it does not provide a clear minimum limit for judges in making decisions. This impacts arguments that lead to opportunities for judges to make very light decisions and not be punished because there is no minimum criminal limit setting. This certainly has an impact on the effectiveness of the Law. According to the legal system theory proposed by Friedman, Law is a system consisting of three elements that determine whether the Law is effective, one of which is the substance of the Law.

Conflict of Norms in Law No 20 of 2003. Based on the results of a study of Law No 20 of 2003 concerning the National Education System as well as other laws and regulations, including the 1945 Constitution of the Republic of Indonesia, Law No 12 of 2012 concerning Higher Education, Law No 14 of 2005 concerning Teachers and Lecturers, it was found that there were problems with Law No 20 of 2003 in the form of a conflict of norms, namely incompatibility/out of sync with other standards, both vertically and horizontally. The criteria referred to can be seen in Table 2 below.

Table 2 – Norms in Law No 20 of 2003, which is not in sync with other norms

No	Law No 20/2003	Other Norms	Description
1	Article 37, § 1 Regarding the mandatory content of the curriculum at the elementary and secondary education levels	Article 31, § 3 of the 1945 Constitution About national education goals	Not sync vertically
		Article 1 point 1, and Article 3 of Law No 20 of 2003	Not sync horizontally
2	Article 37, §2 About the compulsory content of the	Article 31, § 3 of the 1945 Constitution About	Not sync vertically

No	Law No 20/2003	Other Norms	Description
	curriculum in higher education	national education goals	
		Article 1 point 1 and Article 3 of Law No 20 of 2003	Not sync horizontally
		Article 35, § 3 of Law No 12 Year 2012	Not sync horizontally
3	Article 39, §2	Article 10 of Law No 12 year 2012	Not sync horizontally
4	Article 42, §1	Article 10 of Law No 12 year 2012	Not sync horizontally

Table 2 above shows the existence of several norms in Law No 20 of 2003 concerning the National Education System that are not in line with other standards, both vertically and horizontally. *First*, Article 37 §1 is not vertically synchronised with Article 31 §3 of the 1945 Constitution of the Republic of Indonesia.

In Article 31, § 3 of the 1945 Constitution of the Republic of Indonesia, it is emphasised that "The government seeks and organises a national education system that increases faith and piety as well as noble character in the context of educating the nation's life which is regulated by law". In the implementation of these provisions, the government stipulates Law No 20 of 2003 concerning the National Education System. The consequence is that all components of the national education system regulated in the Law must be oriented towards achieving the educational goals mandated in Article 31 § 3, namely increasing faith and purity as well as noble character in the context of the nation's intellectual life.

As mentioned above, the purpose of national education is to strengthen the distinctive character of the Indonesian nation by the values of Pancasila. This goal should be a direction in regulating all education system components, including the curriculum. This follows the opinion of [8], who argues that the values in formulating educational goals are a fundamental reference in Curto. However, the provisions of Article 37 §1 of Law No 20 of 2003 confirm that "primary and secondary education curriculum must contain: a) religious

education, b) citizenship education, c) language, d) mathematics, e) natural sciences, f) social sciences, g) arts and culture, h) physical education and sports, i) skills/vocational education, and (j) local content".

In the provisions of Article 37 §1 of Law No 20 of 2003 concerning the National Education System, as shown above, Pancasila is not mandatory in the primary and secondary education curriculum. This certainly does not follow the objectives of national education as mandated in Article 31, §3 of the 1945 Constitution of the Republic of Indonesia, which is oriented towards strengthening the distinctive character of the Indonesian nation, namely the nature of Pancasila. Meanwhile, Pancasila is not a mandatory curriculum content.

Pancasila should be a mandatory content of the primary and secondary education curriculum, which is affirmed in Article 37, §1 of Law No 20 of 2003 because it is the nation's ideology, which is the direction of the development of the distinctive character of the Indonesian government so that it is in sync with the provisions in the Indonesian constitution, namely Article 31, §3 of the 1945 Constitution of the Republic of Indonesia which requires that education be directed at efforts to build the distinctive character of the Indonesian nation following Pancasila.

The provisions of Article 37, §1 of Law No 20 of 2003, apart from being out of sync vertically, are also out of sync horizontally between articles in Law No 20 of 2003, namely Article 1 number 2 and Article 3. Article 1 number 2 emphasises that "National education is education based on Pancasila and the 1945 Constitution of the Republic of Indonesia which is rooted in religious values, Indonesian national culture, and is responsive to the demands of changing times". Furthermore, Article 3 emphasises that "National education functions to develop capabilities and shape the character and civilisation of a dignified nation in the context of educating the nation's life, aiming at developing the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen".

The provisions of Article 1 point 2 and Article 3 of Law No 20 of 2003, as above, place Pancasila as the fundamental foundation in education administration. However, Pancasila is not made a mandatory curriculum content at all levels of ed-

ucation. This certainly impacts the unclear direction of education development and the failure to achieve educational purposes.

Second, Article 37 § 2 of Law No 20 of 2003 is not in sync vertically with Article 31 § 3 of the 1945 Constitution of the Republic of Indonesia, and also horizontally out of sync with Article 1 No 1, 3 as well as Article 35 § 3 of Law No 12 of 2012 concerning Higher Education.

Article 37, § 2 of Law No 20 of 2003 stated that "the curriculum for higher education must include: a) Religious education, b) Civic education, c) language". This provision does not contain Pancasila as a mandatory curriculum content at the higher education level, so it is not vertically synchronous with Article 31 § 3 of the 1945 Constitution of the Republic of Indonesia, which shows the direction of education development to strengthen the distinctive character of the Indonesian nation by the values of Pancasila – namely increasing faith and purity, as well as noble feeling in educating the nation's life.

In addition, Article 37, § 2 of Law No 20 of 2003 is also not in sync vertically with Article 35, § 3 of Law No 12 of 2012 concerning Higher Education, which confirms that "the higher education curriculum as referred to in §1) must contain the following subjects: a) religion, b) Pancasila, c) citizenship, d) Indonesian language". In Law No 20 of 2003, Article 37 § 2 does not contain Pancasila as a mandatory content of the higher education curriculum, but in Law No 12 of 2012, Article 35 § 3 obliges Pancasila as a compulsory content of the higher education curriculum. Thus, the two are out of sync.

The absence of Pancasila as a mandatory curriculum content, as stipulated in Article 37, §§ 1-2, is not in line with the theory of legislation stated by [9], that the bill in a country is a tiered arrangement. The implementation of this theory in Indonesian laws and regulations can be found in the provisions of Law No 12 of 2011 concerning the Establishment of Legislation, Article 7, § 1, which places the 1945 Constitution of the Republic of Indonesia as the highest legislation in Indonesia and the Act as legislation which is under the 1945 Constitution of the Republic of Indonesia No 20 of 2003 concerning the National Education System which is a law that further regulates the provisions of Article 31 § 3 of the 1945 Constitution of the Republic of Indonesia, must contain substances that are in sync with the article by

including Pancasila as a compulsory curriculum content at all levels of education.

Third, Article 39 § 2 of Law No 20 of 2003 is not horizontally synchronised with Article 10 of Law No 14 of 2005 concerning Teachers and Lecturers. Article 39 § 2 of Law No 20 of 2003 confirms that "educators are professionals who are tasked with planning and implementing the learning process, assessing learning outcomes, conducting guidance and training, as well as conducting research and community service, especially for educators in higher education". These provisions are not in sync with the requirements of Law No 14 of 2005 concerning teachers and lecturers, Article 10 which confirms that "the competence of teachers as referred to in Article 8 includes pedagogic competence, personality competence, social competence, and professional competence obtained through professional education".

The provisions of Article 10 of Law No 14 of 2005, as above, emphasise that professional competence is only one part of the competency's teachers must possess. Thus, it is incomplete to mention that educators are professionals. It is necessary to emphasise that educators are personnel who have qualifications and competencies.

Fourth, Article 42 § 1 of Law No 20 of 2003 is not horizontally synchronised with Article 10 of Law No 14 2005 concerning teachers and lecturers. Article 42, § 2 of Law No 20 of 2003 emphasised that "educators must have minimum qualifications and certification by the authority to teach, be physically and mentally healthy and have the ability to realise national education goals". These provisions only require educators to have qualifications and certification, while in Law No 14 of 2005 concerning teachers and lecturers, Article 8 states that "teachers are required to have academic qualifications, competencies, educator certificates, physically and mentally healthy, and have the ability to implement national education goals.

The provisions of Article 8 of Law No 14 of 2005, as above, confirm that teachers must also have qualifications, certification, and competence. Thus, the provisions of Article 42 § 1 of Law No 20 of 2003, which only requires educators to have qualifications and certification, are not in sync with Article 8 of Law No 14 of 2005. Therefore, it is necessary to amend Article 42 § 1 of Law No 20 of 2003 by adding the requirement for educators to have competence, qualifications,

and certification to be in sync with the provisions of Article 8 of Law No 14 of 2005.

Various legal problems in Law No 20 of 2003 must be the concern of all parties, especially the legislators, to immediately make changes and improvements to provide certainty, as stated by [10]. In addition, to function as a means of community change, the theory of legal function proposed by [11], namely Law as a tool of social engineering (Law as a means of community engineering),

Legal problems of Law No 20 of 2003 in regulating the elements of the national education system, as mentioned above, certainly affect the efforts to achieve educational goals. This is the opinion of [12], who argues that the system is a set of interrelated components that together function to accomplish an objective. In addition, the author [13] argues that education is a linked process and includes elements closely related to one piece and another. Components of education in [14] view include educational purposes, students, educators, educational interactions, educational materials, educational tools and methods, and the educational environment. Therefore, regarding the legal problems of Law No 20 of 2003 regarding curriculum, educators, and education staff that are not in sync vertically or horizontally, improvements can be made immediately to synchronise and implement the national education goals as expected.

CONCLUSIONS

Based on the discussion above, it can be concluded that the legal problems of Law No 20 of 2003 concerning the National Education System are:

1. There is a vagueness of norms in Law No 20 of 2003 concerning the National Education System, including

a) Article 1 point 5 concerning the definition of educators, and Article 1 point 6 concerning the definition of educators.

b) Article 37, §§ 1–2 regulates the compulsory content of the curriculum, including language. The norm is vague because it does not clearly and explicitly state the language in question, namely Indonesian,

c) Article 39 concerning the duties of educators. The norm is blurred because of the sentence "especially for educators in higher education". The sentence gives unclear duties for educators outside of tertiary institutions to conduct research and service,

d) Article 40 §§ 1–2 concerning the rights and obligations of educators and education personnel. The norm is vague because there is no apparent difference between the obligations of educators and education staff,

e) Article 67, Article 68, Article 69, Article 70, and Article 71 concern criminal provisions that only regulate the maximum criminal limit. The norm is vague because it does not regulate the minimum criminal limit other than setting the maximum limit.

2. The existence of conflicting/unsynchronised norms in Law No 20 of 2003 concerning the National Education System, namely:

a) Article 37 §§ 1-2 are not vertically synchronised with Article 31 § 3 of the 1945 Constitution of the Republic of Indonesia, not horizontally synchronised with Article 1 point 1 and also Article 3 of Law No 20 of 2003. Specifically, Article 37 § 2 is also not horizontally synchronised with Article 35 § 3 of Law No 12 of 2012 concerning Higher Education,

b) Article 39 § 2 and Article 42 § 2 are not horizontally synchronised with Article 10 of Law No 12 of 2012 concerning Higher Education.

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The Effect of Social Intelligence and Adversity Intelligence of Students on Videographic Creativity

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Abstract. Humans, since time immemorial, have carried out creativity. Without creative people, maybe the world would not be as it is now. Everyone has a fantastic gift for creativity. Everyone has the cultivation and development of creativity, but it needs to be identified and stimulated. This study aims to reveal the Effect of Social Intelligence and Adversity Intelligence of Students on Videographic Creativity. This study uses a type of quantitative research with a survey approach. The population of this study was all students at public and private vocational high schools (SMK) in the cities of East Jakarta and Bekasi. The sampling technique uses stage random sampling. Research data were obtained from social intelligence instruments, adversity intelligence instruments and videographic creativity instruments. Before being used to collect research data, the device was tested for the validity and reliability of the instrument. Data analysis using regression analysis. Conclusion: 1) Social Intelligence has a direct positive effect on videographic creativity. 2) Social Intelligence directly affects Adversity Intelligence. 3) Adversity intelligence has a direct positive effect on videographic creativity.

Keywords: Social Intelligence; Adversity Intelligence; Videographic Creativity.

INTRODUCTION

The Vocational High School Television and Film Broadcasting Expertise Program (Broadcasting) is a level of education that requires maturity of ideas and creativity in every lesson. Learning uses a project system where students are asked to design concepts for a video [1]. This is because the Vocational High School Expertise Program is closely related to presenting broadcasts and films that must be acceptable to the public. One can be conveyed through video capture techniques (videography) [2]. However, because teaching in the classroom still tends to use lectures, it is difficult for students to express ideas and develop creativity in the given project [3]. In taking a video, the involvement of various aspects of intelligence is needed to get the depth of the meaning of video art [4].

Authors [5] suggest an interaction effect between learning approaches, emotional intelligence, adversity, and social learning outcomes. This also refers to the opinion [6] that IQ determines 20%

of success in learning while the other 80% is determined by factors including emotional, social, and adversity intelligence. Different types of intelligence also support emotional intelligence in humans, including AQ (Adversity Quotient Intelligence). Adversity Quotient Intelligence measures the ability to face difficulties in life [7]. Related to creativity in videography, this intelligence is essential to improve because ideas are not always easy to find. Therefore, the resilience to consistently find ideas and develop them until they become the expected output is essential. The author [8] introduces the LEADS chain theory and the three pillars in building an Adversity Quotient which can change thinking habits and serve as a framework for measuring and improving responses to experienced events, as well as improving performance, which will enhance personal and professional effectiveness, which is a combination of reactions from cognitive psychology, psychoneuroimmunology, and neurophysiology together to form AQ [9]. Stolz's synthesis of the theory can be translated into life to under-

stand how to predict performance, empower, and determine productivity and expectations.

Social intelligence will support students in getting used to seeing interactions in a social environment so that they can know what kind of videos are acceptable to the community and benefit the surrounding environment. Social intelligence is also related to how students can communicate, build, and maintain relationships with various parties in an effective way [10]. Students with high social intelligence will be able to understand the feelings and desires of other people, accept other people's opinions, and adapt to various social situations [11]. That way, students who have this intelligence can implement it in the videos they make, for example, sensitivity to social feelings with others, how to understand social situations and convey them to the audience, and can present ways that can attract the sympathy of others until they are finally able to get the contents of the videos they make. Through social intelligence, students can develop effective communication, which is considered one of the competencies that supports success because it can convince others of the work created.

METHOD

The research method used in this study is a survey method. The population of this study was all

students at public and private vocational high schools (SMK) in the cities of East Jakarta and Bekasi. The sampling technique used is random sampling. The time for this research will be carried out in odd semesters of the 2021-2022 school year, March to December 2021, to be precise. The research data was obtained from the social intelligence instrument, the adversity intelligence instrument and the videographic creativity instrument. Before collecting research data, the tool was first tested in the population but outside the research sample to test its validity and reliability. The analysis technique used is the regression analysis technique. This study aims to reveal a) the effect of social intelligence on videographic creativity, b) the effect of social intelligence on adversity intelligence, and c) the effect of Adversity Intelligence on videographic creativity.

RESULTS AND DISCUSSIONS

The Effect of Social Intelligence on Videographic Creativity. The effect of social intelligence X_1 on videographic creativity Y is processed using SPSS 20 with the following research results.

Table 1 – SPSS model summary test results

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.731 ^a	0.534	0.532	14.29766	0.534	275.245	1	240	0.000

Notes: Constant – Social Intelligence.

Table 2 – ANOVA Analysis Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	56266,346	1	56266,346	275,245	.000
Residual	49061,505	240	204,423		
Total	105327,851	241			

Notes: Dependent Variable – Videography Creativity; Constant – Social Intelligence

Table 3 – SPSS test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero order	Partial	Part
Constant	55,465	6,369		8,708	,000			
Social Intelligence	,714	,043	,731	16,591	,000	,731	,731	,731

From Table 1, the coefficient of determination R^2 of 0.534 means that 53.4% of the video graphics creativity variable (Y) variability can be explained by the social intelligence variable X_1 , so that error = $1 - R^2 = 1 - 0.534 = 0.466 \approx 0.10$. Based on the analysis results in Table 2, $F_0 = 275.245$; $df_1 = 1$ $df_2 = 240$, p-value = 0.000 < 0.05 or H_0 is rejected. Thus, Social Intelligence (X_1) influences the Videographic Creativity variable (Y).

The path coefficient X_1 to Y in Table 3 = 0.731. The hypothesis to be tested is $H_0: \gamma_{22} \leq 0$; $H_1: \gamma_{22} > 0$.

From Table 3, the price is $t_0 = 16.591$ and p-value = $0.000/2 < 0.05$ or H_0 is rejected. Thus, the Social Intelligence variable X_1 directly affects video graphics creativity Y. Thus, the study's first hypothesis is supported by empirical data.

The Effect of Social Intelligence on Adversity Intelligence. The Effect of Social Intelligence X_1 on Adversity Intelligence X_2 was processed using SPSS 20 with the following research results.

Table 4 – SPSS model summary test results

R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
				R^2 Change	F Change	df1	df2	Sig. F Change
.740 ^a	.548	.546	15,80773	.548	290,908	1	240	.000

Notes: Constant – Social Intelligence.

Table 5 – ANOVA Analysis Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	72693,479	1	72693,479	290,908	.000 ^b
Residual	59972,244	240	249,884		
Total	132665,723	241			

Notes: Dependent Variable – Adversity Intelligence; Constant – Social Intelligence.

Table 6 – SPSS test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero order	Partial	Part
Constant	39,512	7,042		5,611	.000			
Social Intelligence	.811	.048	.740	17,056	.000	.740	.740	.740

Notes: Dependent Variable – Adversity Intelligence

From Table 4, the coefficient of determination R^2 of 0.548 means that 54.8% of the Adversity intelligence variable X_2 variability can be explained by the social intelligence variable X_1 , so that error = $1 - R^2 = 1 - 0.548 = 0.452 \approx 0.10$.

Based on the analysis results in Table 5, $F_0 = 290.908$; $df_1 = 1$ $df_2 = 240$, p-value = 0.000 < 0.05 or H_0 is rejected. Thus, Social Intelligence X_1 affects the adversity Intelligence variable X_2 .

The path coefficient X_1 to X_2 in Table 6 = 0.740. The hypothesis to be tested is $H_0: \gamma_{12} \leq 0$; $H_1: \gamma_{12} > 0$.

$\gamma_{12} > 0$. From Table 6, the price is $t_0 = 17.056$ and p-value = $0.000/2 < 0.05$ or H_0 is rejected. Thus, the Social Intelligence variable X_1 directly affects Adversity Intelligence X_2 . Therefore, the second research hypothesis is supported by empirical data.

Effect of Adversity Intelligence on Videographic Creativity. The Effect of Adversity Intelligence X_2 on Videographic Creativity Y was processed using SPSS 20. With the following research results:

Table 7 – SPSS model summary test results

R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
				R ² Change	F Change	df1	df2	Sig. F Change
.934 ^a	.872	.871	7,50559	.872	1629,706	1	240	.000

Notes: Constant – Adversity Intelligence.

Table 8 – ANOVA Analysis Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	91807,711	1	91807,711	1629,706	.000
Residual	13520,140	240	56,334		
Total	105327,851	241			

Notes: Dependent Variable – Videography Creativity; Constant – Adversity Intelligence.

Table 9 – SPSS test results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
Constant	28,289	3,299		8,576	.000			
Adversity Intelligence	.832	.021	.934	40,370	.000	.934	.934	.934

Notes: Dependent Variable – Videography Creativity.

From Table 7, the coefficient of determination R^2 of 0.872 means that 87.2% of the variability of the video graphics creativity variable Y can be explained by the Adversity intelligence variable X_2 , so that error = $1 - R^2 = 1 - 0.872 = 0.128 \approx 0.10$.

Based on the analysis results in the table above, $F_0 = 1629.706$ is obtained; $df_1 = 1$ $df_2 = 240$, p -value = $0.000 < 0.05$, or H_0 is rejected. Thus, Adversity Intelligence X_2 influences the Videographic Creativity variable Y .

The path coefficient X_2 to $Y = 0.934$ is in Table 9. The hypothesis to be tested is $H_0: \gamma_2 \leq 0$. $H_1: \gamma_2 > 0$.

From Table 9, the price is $t_0 = 40.370$ and p -value = $0.000/2 < 0.05$ or H_0 is rejected. Thus, the Adversity Intelligence variable X_2 directly affects video graphics creativity Y . Therefore, the third hypothesis of the study is supported by empirical data.

Students with high social intelligence also tend to be more creative in making videographic works. Students' ability to interact and collaborate with others can help them broaden their horizons and innovative ideas. In addition, students with high adversity intelligence also tend to be more creative in making videographic works.

Students' ability to overcome challenges and obstacles in making videographic works can strengthen their creative skills. In the context of

videography, previous research supports the findings that students' emotional, social, and adversity intelligence can influence their creativity in making videographic works. For example, research conducted by [12] showed that emotional intelligence can predict creative abilities in making decisions in filmmaking. Another study by [13] showed that social intelligence also plays a vital role in increasing students' creativity in making short films. Meanwhile, research by [14] shows that adversity intelligence can improve students' creative abilities in overcoming technical problems in making videographic works.

Research [15] showed that the emotional quotient (EQ) variable positively affects students' mathematics learning achievement. However, the development of students' EQ is still lacking. This can be seen from the data on the EQ level of students in the medium category.

This certainly needs to be paid more attention to by educators because EQ influences mathematics learning achievement so that in the future, the learning achievement of students belonging to the low category can be further improved. The adversity quotient (AQ) variable does not directly affect students' mathematics learning achievement. The absence of the influence of AQ is suspected because students still have difficulty dealing with the problems they face when learn-

ing in class. This can be seen from the descriptive analysis data on the AQ questionnaire of students who have an AQ level in the camper category, which is, according to [8], students who are in the camper category still tend to be quickly satisfied with the learning outcomes they achieve, not trying as much as possible to achieve even better results, whatever results they obtain they will accept these results. So that students will be challenged to develop in the learning process or their learning outcomes.

CONCLUSIONS

This research can be concluded as follows:

- a) Social Intelligence X_1 directly affects videographic creativity Y . Thus, empirical data support the first research hypothesis.
- b) Social Intelligence X_1 has a direct positive effect on Adversity Intelligence X_2 . Thus, the second research hypothesis is supported by empirical data.
- c) Adversity intelligence X_2 has a direct positive effect on videographic creativity Y . Thus, empirical data support the third hypothesis of the study.

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The Effectiveness of Sociology Teaching Books Based on Local Wisdom as an Effort to Strengthen Student Character

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Abstract. This study aims to describe the effectiveness of sociology textbooks based on local wisdom to strengthen student character and factors that influence the effectiveness of sociology textbooks based on local knowledge to enhance student character. This study uses a descriptive qualitative approach. Data were collected using interviews, observation, and documentation and analyzed using qualitative analysis. The results of the survey show that: 1) Sociology textbooks based on local wisdom are effective as an effort to strengthen student character because the local knowledge integrated into the textbook is used by teachers not only to make it easier to understand the contents of the book or the substance of the material but also to strengthen character. This can be seen from the textbooks' descriptions, illustrations, and questions, which aim to lead students' opinions on character values, including religious, creative, and caring environmental characters that can be rewritten in everyday life. 2) Factors that influence the effectiveness of sociology textbooks based on local wisdom as an effort to strengthen student character include teacher factors and the availability of facilities. The teacher's factor is related to the mastery of the material and the use of innovative learning methods. The facility factor is associated with the availability of sociology textbooks based on local wisdom for teachers and students.

Keywords: Textbooks; Local Wisdom; Character.

INTRODUCTION

The research by [1] has produced a product in the form of local wisdom-based sociology textbooks for class XII Semester II. The intended textbook was developed based on Basic Competencies (KD) 3.4 as contained in the annex to Regulation of the Minister of National Education No 69 of 2013 [2].

The primary competency was chosen to be developed into a textbook because 1) the Basic Competencies are related to local wisdom, 2) it is related to efforts to strengthen character amidst the influence of globalization, 3) it is related to the North Lombok community which has a lot of local wisdom which contains character values that are relevant to the needs of facing the effects of globalization. The results of this research are, of course, essential to be followed up by testing the effectiveness of the textbook to strengthen student character. This is very important and ur-

gent to increase the efficacy of learning sociology, especially in strengthening student character.

This research is urgent:

1) To improve the effectiveness of Sociology learning in SMA and MA in North Lombok. In this case, the results of this study are expected to increase the contribution of the Sociology subject in strengthening student character. This means that the Sociology subject in SMA and MA equips students with various Sociological concepts and strengthens character.

2) As an alternative solution to prepare students as part of a community with character. In this case, through the textbooks produced, it is hoped that it can assist teachers in preparing students as part of a community with character.

Authors [3] show significant differences in learning outcomes between pre-test and post-test results. From the results of the oral evaluation, it is known that students can provide examples of the four types of norms that apply in a varied com-

munity environment and can demonstrate tolerant behaviour in ethnic, religious, racial and inter-group diversity within the framework of Bhinneka Tunggal Ika in the city of Singkawang. This shows that the effective use of teaching materials improves student learning outcomes.

The research [4] shows that the teaching materials' validation results got an average rating on all aspects of the validator 3.7 with validation criteria of 93%. According to [5], this range of criteria is very feasible or can be used.

Research [6] showed a significant increase in the average value of writing description skills in the experimental class compared to the control class. The pre-test value for the control class was 61.25, and the post-test was 71.40. An increase of 16.57% with an average n-Gain of 0.274, including the low category. Meanwhile, the pre-test score for the experimental class was 61.22, and the post-test score was 83.31. There is an increase of 36.08% with an average n-Gain of 0.570, which is in the moderate category. The difference in this increase indicates that the teaching material effectively improves the ability to write descriptions.

Research [7] shows that lesson plans, tenth-grade biology textbooks with local Timorese customs for teachers and students, and Student Work Sheets created based on local wisdom affect students' achievement.

The similarities between this research and this research are that they examine the effectiveness of the teaching materials developed. The difference lies in this study's orientation, substance, and location, namely the effectiveness of sociology textbooks based on local wisdom to strengthen the character of high school students in North Lombok. The study of this issue is critical because local wisdom contains various good values built and maintained by the local community. Related to this, the author [8] explains that according to a cultural perspective, local wisdom is the various values that are created, developed and maintained by the community, which become their guideline of life, including multiple mechanisms and ways to behave, behave and act which are outlined as a social order.

Local wisdom is a form of knowledge, belief, understanding, and habits as a product of past culture, which has local advantages so that it is institutionalized traditionally and becomes the community's way of life [9]. Local wisdom has mean-

ing as ideas, values, attitudes, and wise views, which are owned by the society and internalized by each member. The author [10] suggests local wisdom, namely intelligence that is local with the following characteristics: being able to withstand foreign cultures, having the ability to accommodate elements of foreign culture, having the ability to integrate aspects of foreign culture into the original culture; have the ability to control; and able to give direction to the development of culture. Local wisdom has universal values reflected in personality and the ability to think globally, act locally, and commit nationally, thus forming a cultural identity [11, 12].

According to [13], forms of local wisdom in society can be in the form of values, norms, ethics, beliefs, customs, customary law, and special rules. On the other hand, the author [13] said that at the end of the sedimentation of this local wisdom, it will manifest into a tradition or religion. The author [14] emphasized that local wisdom has various forms and lives in multiple cultures of society, so its functions are different, namely: conservation and preservation of natural resources, development of human resources, development of culture and science, advice, beliefs, literature, and taboos; social meaning, ethical and moral meaning, and political meaning. On the other hand, the author [15] emphasized that local wisdom has three functions, namely: *a dialogical function*, namely the function of opening up to each other to get to know each other; *the integrative function*, namely the function of uniting diversity and strengthening solidarity cohesion; *transformative function*, namely the function of changing backwardness and conflict to progress, togetherness and peace.

Based on the definitions, forms, and functions of local wisdom as above, the development of sociology textbooks based on local wisdom can be an effort to strengthen students' character. According to [16], maintaining student character is a must. The author [17] suggests that there are nine pillars of character originating from universal noble values, namely: 1) the character of love for God and all of His creation; 2) independence and responsibility; 3) honesty/trustworthiness, diplomatic; 4) respectful and courteous; 5) generous, like helping and cooperation/cooperation; 6) confident and hardworking; 7) leadership and justice; 8) kind and humble, and; 9) the characters of tolerance, peace, and unity. The efforts to strengthen student character through sociology textbook products that integrate local wisdom

are based on the opinion of [18], who believes that character education must be rooted in national culture, which generates many values or wisdom. The diversity of the nation's cultural treasures implies that every community has a different local culture that creates local wisdom.

In addition, the author [19] argues that character education cannot be separated from the values attached to the context. Local wisdom represents a way of life that grows and develops in a community. The same opinion was expressed by [20], who said that the development of character education cannot be separated from the culture in a place where character education is held. One of the cultures that exists and is passed down from generation to generation in society is local wisdom.

Protection and preservation of local wisdom and character development is a necessity. The author [21] believes that character education and national culture must be developed in schools.

According to [19], developing local wisdom-based character education is based on the belief that each community has specific strategies and techniques to carry out life according to its context. Based on the explanation above, developing sociology textbooks based on local wisdom greatly supports efforts to strengthen student character.

Based on the background above, the problem that is the focus of the study in this research is: "How is the effectiveness of local wisdom-based sociology textbooks as an effort to strengthen the character of high school (SMA/MA) students in North Lombok?"

RESEARCH METHOD

This type of research is descriptive qualitative research, which aims to explain a social phenomenon or an event. Descriptive qualitative research is research that collects data in the field. In this case, the researcher collects data about the effectiveness of sociology textbooks based on local wisdom to strengthen character through research subjects, namely sociology teachers in SMA/MA in North Lombok. They are collecting data using interview techniques, observation, and documentation studies.

Data analysis used in this research is qualitative analysis with steps as in [22], namely data reduction, data presentation, and verification/concluding. In this case, the data obtained

through interviews with sociology teachers and documentation studies were selected beforehand, and then the election results were presented systematically.

RESULTS AND DISCUSSION

The Effectiveness of Sociology Textbooks Based on Local Wisdom as an Effort to Strengthen Student Character. Effectiveness is a fundamental concept because it can provide an overview of success in achieving goals, or effectiveness is the level of achievement of objectives from the activities carried out compared to predetermined targets.

Textbooks as a learning tool can undoubtedly be measured for their effectiveness in terms of their contribution to helping students achieve learning goals. In interviews with high school sociology teachers in North Lombok, it was stated that using sociology textbooks based on local wisdom is very effective in teaching because learning becomes more meaningful. In this case, learning is building knowledge and strengthening character.

The sociology teacher's statement placing strengthening character as part of the learning objectives that can be developed through the use of local wisdom-based sociology textbooks as above is relevant to the function of education as emphasized in Article 3 of Law No 20 of 2003 concerning the National Education System [23], namely forming a dignified national character and civilization to educate the nation's life.

Furthermore, high school/MA sociology teachers in North Lombok also revealed that sociology textbooks based on local wisdom can impact students' growth and development of character values. Using sociology textbooks based on local wisdom makes students more enthusiastic about learning because learning becomes contextual, making it easier to understand and enjoyable. After all, what is learned is around students; even students become part of it.

The effectiveness of sociology textbooks based on local wisdom to strengthen character is also supported by document data, namely the textbook in question, which shows an orientation towards strengthening character. This can be seen from the textbook composition, which in the first part contains four aspects of Basic Competency, including elements of ritual attitudes, social attitudes, knowledge, skills, and character values related to Basic Competency, as shown in Table 1.

Table 1 – Basic Competencies of Sociology in High School

KD KI.1	KD KI.2	KD KI.3	KD KI.4
1.1 Opening Insights to various world civilizations to strengthen religious values and encourage respect for the diversity of cultures.	2.2-2.2 Demonstrate empathy for social inequality in the surrounding community and encourage participation in overcoming it	3.4 Describe how to carry out a community empowerment strategy by prioritizing local wisdom values amidst the influence of globalization.	4.4 Designing, implementing, and reporting community empowerment actions by prioritizing local wisdom values amidst the influence of globalization.
Religious, Tolerance	Social Awareness		Creative Democratic Communicative Spirit of nationality

KD in Sociology, as in the table above, shows that the orientation of sociology subjects is about building knowledge and strengthening character. However, efforts to strengthen character through sociology courses are not carried out partially by efforts to build knowledge but must form a

whole. In this case, character strengthening is integrated into building knowledge. For this reason, it can be done by integrating local wisdom, which contains character values to illustrate learning material. In this case, the learning materials developed can be seen in Table 2.

Table 2 – Main material and sub material

KD. 3.4 – Describe how to carry out the community empowerment strategy by prioritizing local wisdom values amidst the influence of globalization.	
Indicator	Sub Indicator
Basic Concept of Community	1. Definition of community 2. Elements of community 3. Type of Community 4. Benefits of community
Community Empowerment	1. The definition of community empowerment 2. The principle of implementation of empowerment community 3. Initiator of community empowerment 4. The strategy of community empowerment 5. The process of implementing community empowerment
Local Wisdom	1. Definition of local wisdom 2. Elements of local wisdom 3. Forms of local wisdom 4. The function of local wisdom
Community Empowerment Program through Local Wisdom	1. Community Empowerment in traditional societies a. Empowerment of cocoa farming communities b. Village community empowerment adat/traditional village (Bayan and Gumantar) c. Community empowerment of woven fabric artisans d. Weaving workshop 2. Community empowerment in modern society
Community Empowerment Program Based on Local Wisdom and Globalization	1. Impact of globalization 2. The urgency of community empowerment based on local wisdom in the era of globalization

It was found that there was local wisdom to illustrate some of these materials, as seen in the following sub-materials. The sub-material "Community Empowerment Initiators" is illustrated of

community activities. The community is one of the initiators of community empowerment besides the government and the private sector. In this case, the community can take the initiative to

empower the community by utilizing the potential of local wisdom, such as coconut sticks.

Coconut sticks are ubiquitous in North Lombok because the main crop on the plantations residents own is coconut. So far, the local community has used coconuts for economic selling value. Meanwhile, coconut sticks become waste; even if sold as sticks, their economic value could be higher. In contrast, when the stick is processed into woven, which is aesthetically pleasing, it has a higher monetary value. Thus, it will have an impact on increasing people's income.

Integration of local wisdom in the form of potential resources that can be managed so that they have economic value, as in the picture above, is oriented by sociology teachers to internalize creative and religious character values. These character values are part of the 18 character values developed in character education, as emphasized in the Ministry of National Education [24].

Creativity is a person's ability to give birth to something new in the form of ideas or real works that have never existed, in new forms or combination with available things. Thus, managing coconut sticks is part of the community's creative efforts to address the existing potential. Therefore, it can be used to internalize innovative character.

In addition, the integration of local wisdom in textbooks is also visible in the material for community empowerment programs based on local wisdom, the sub-material for community empowerment in traditional societies. Several things were explained regarding this sub-material, including 1) empowering the indigenous community of Bayan Village, 2) empowering the farming community, and 3) empowering the community of weavers in Bayan Village.

Regarding the sub-materials on community empowerment for the indigenous people of Bayan Village, it describes how the indigenous people of Bayan are a traditional society that still maintains local wisdom amid changing times. Local wisdom is meant to exist in various forms, including building architecture and customary law. The architecture of the building includes the Bayan ancient mosque building, as shown in the following Figure 1.



Figure 1 – Bayan Ancient Mosque

As seen above, the picture of the Bayan Ancient Mosque illustrates the potential that must be considered in empowering indigenous communities in the textbook. The architecture of the Bayan Ancient Mosque is part of the local wisdom of the Bayan people, which has proven to make Bayan Village known to the world community. This can be observed from the many foreign tourists who visit the place.

Furthermore, in the textbook, several questions arouse students' reasoning power, including: 1) Why did the ancient Bayan Mosque receive the attention of the world community? 2) What is the uniqueness of the Bayan Ancient Mosque? 3) What are the values contained in the architecture of the Bayan Ancient Mosque? The teacher uses these three questions not only to build knowledge but also to internalize character values. Through these three questions, the teacher leads students' opinions on character values in the architecture of the Bayan Ancient Mosque building, which is built at a height that exceeds other buildings as a manifestation of religious values because, in the view of the Bayan people, the mosque is a holy place, a place of worship to glorify oneness Allah SWT so it must be built at a height that exceeds other buildings. Thus, integrating local wisdom in the form of the Ancient Bayan mosque can help strengthen religious character.

In addition, the textbook also explains the existence of a social order that regulates and binds all aspects of community life in Bayan Village, both related to human relations with the Creator, human relations with nature, and relations between humans. This relationship creates customary law that applies in Bayan Village.

Furthermore, the textbook explains that one of the essential aspects that became a consideration for the birth of customary law in Bayan Village was the need for water to meet the community's

basic needs for posterity in the future. This is undoubtedly to the concept of sustainable development. This concept is applied by the people of the Bayan Traditional Village by preserving the forest through the application of stringent customary law in regulating forest sustainability.

To preserve the forest, the people of Bayan Traditional Village have a customary law which they call '*awiq-awiq*', which contains five substances as follows:

1. Taking, picking, uprooting, cutting down, catching animals, and burning dead trees/wood found in customary forest areas is prohibited.
2. It is prohibited to herd livestock around the edges of and within customary forest areas, which can cause damage to forest flora and fauna.
3. It is forbidden to contaminate/pollute springs in customary forest areas.
4. It is forbidden to poison watersheds (DAS) using fottas, decis, electric shocks, and other things around the forest and outside the customary forest area, which can cause the killing of living biotics in the river.

Each user/user of water, individuals and groups, must pay a fee/*sawinih* to forest managers and water sources.

An example of the sanction is a fine of one buffalo for residents who cut down a tree in the customary forest. If the fine has not been paid, the person concerned will not be served any day-to-day needs and may not participate in traditional events. Of course, these sanctions are very burdensome for the perpetrators, so until now, no one has violated them, and they impact forest sustainability, as shown in Figure 2.

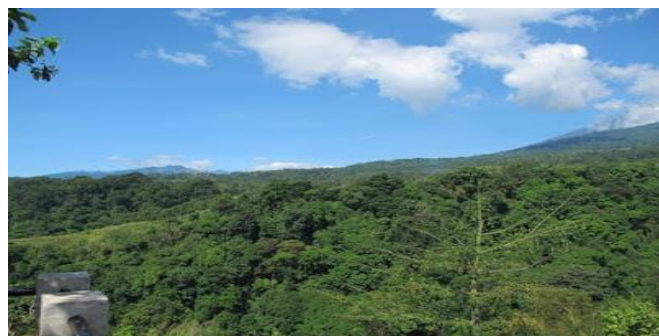


Figure 2 – Customary Forest Bangket Bayan

The Bangket Bayan customary forest is typical in Teres Genit Hamlet, Bayan Village, with an area of 57.4 ha. This forest is in the middle of an agricultural rice field area. The sustainability of the Bangket Bayan customary forest is inseparable from the strong *awiq-awiq* the local indigenous community carries out. Moreover, this familiar forest has a spring that is not only utilized by the surrounding community but also by the Local Water Company (PDAM) for the needs of the people of Bayan District.

After the description of local wisdom in the form of customary laws for preserving forests and springs as above, several questions must be answered by students in the textbook, including: 1) what is your attitude towards customary laws for preserving forests and springs, if you become part of the community members of Bayan Village, 2) What character values are contained in the customary law on forest and spring conservation in Bayan Village?, 3) What are your ideas/ideas for community empowerment in your area? The teacher uses these questions to lead students' opinions on the values of religious character and environmental care contained in these customary laws. Thus, it can help strengthen student character.

Various data on local wisdom-based sociology textbooks, as above, illustrate that local wisdom-based sociology textbooks effectively strengthen student character. This is possible because the textbook integrates different local pearls of wisdom of the people of North Lombok, which require character values. The character values in the intended local wisdom are relevant to the character values in the Basic Competency of Sociology subjects, which are developed into the planned textbooks, namely KD class XII, as in Table 1. This is by the notion of effectiveness, which comes from the word practical, which means something that has an effect (as a result, influence, impression) in the Big Indonesian Dictionary. Effectiveness is the achievement of predetermined goals or objectives.

The research data above illustrates the effectiveness of sociology textbooks because these textbooks are not only oriented towards building knowledge but also strengthen character, namely religion, creativity, and care for the environment. Thus, the textbook is practical to enhance student character.

Supporting and Inhibiting Factors in the Use of Local Wisdom-Based Sociology Textbooks. A textbook is a written work in the form of a book in a particular field, which is a standard book used by teachers and students in the teaching and learning process for instructional purposes and purposes which is equipped with teaching tools that are compatible and easy to understand by the user at schools and colleges to support the teaching program.

Textbooks are one of the learning tools that influence the quality of the learning process. It is a learning unit that contains information, discussion, and evaluation. Systematically arranged textbooks will make it easier for students to understand the material to support the achievement of learning objectives.

Talking about textbooks in their use certainly has supporting factors. Interviews with high school sociology teachers in North Lombok revealed that the teacher is the main factor that supports the use of textbooks. In this case, the teacher must master the material to be studied. The next factor is the availability of complementary facilities such as an LCD projector.

Based on the interview above, it supports using textbooks in the learning process as being more effective. It must be supported by the teacher's ability to master every material in the textbook so that students will also quickly understand the material being taught, primarily if a teacher can use learning methods appropriate to the material being taught. In addition to the teacher having to master the material contained in the textbook, of course, it must be supported by the availability of infrastructure and facilities in schools, such as the availability of LCD projectors so that students not only listen to the material but can also see through the media used.

In addition to supporting factors, some factors hinder teachers from maximizing textbooks at school. Based on interviews with sociology teachers at SMA/MA in North Lombok, it was revealed that there were several factors inhibiting teachers from using textbooks at school, such as teachers not mastering the material in textbooks, the methods used were monotonous and a lack

of supporting facilities such as the unavailability of textbooks for students to hold.

Based on the interview above, it can be understood that several factors become obstacles for teachers in using textbooks in schools. First, the teacher does not master the material in the textbook, so the students also cannot understand the lessons being taught even though there is already textbooks that student hold in class. Second, the teacher's teaching style could be more varied so that students get bored quickly in class. Third, namely, the need for school support facilities, primarily related to the unavailability of sociology textbooks based on local wisdom for students to hold.

CONCLUSIONS

Sociology textbooks based on local wisdom are effective as an effort to strengthen student character because the local wisdom integrated into the textbook is used by teachers not only to make it easier to understand the book's contents or the substance of the material but also to strengthen character. This can be seen from the textbooks' descriptions, illustrations, and questions, which aim to lead students' opinions on character values, including religious, creative, and caring environmental characters that can be rewritten in everyday life.

Factors that influence the effectiveness of sociology textbooks based on local wisdom to strengthen student character include teacher factors and the availability of infrastructure and facilities. Teacher factors related to mastery of the material and the use of learning methods. In using sociology textbooks based on local wisdom to strengthen student character in schools, teachers must master the material being taught. They must also be supported by supporting infrastructure and facilities. The inhibiting factors are that the teacher does not master the material being taught, the methods used in learning are monotonous, and books are unavailable for students to hold.

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Community Empowerment Strategy in Education Financing at the Darul Quran Aceh Besar Islamic Boarding School, Indonesia

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Abstract. Community empowerment is considered one of the proper steps in strengthening education financing as a form of just democracy, which means that the community has the right to receive quality education and is obliged to provide funds. This research aims to discover 1) the pattern of education developed; 2) strategic steps for community empowerment in education financing; 3) supporting and Inhibiting Factors of Community Empowerment in Education Funding – data collection techniques through observation, interviews, and documentation studies. Research subjects include leaders and secretaries, treasurers, and school principals. Data analysis using descriptive qualitative provides data reduction, data presentation, and conclusion. The study results are:

1) The pattern of education developed in Dayah Darul Qur'an Aceh is by formulating the vision and mission. It uses a dual curriculum between the national education curriculum and the Dayah curriculum. The Dayah curriculum has excellent programs, namely memorising the Koran and a lot of Arabic and English.

2) Community empowerment steps in education financing include: a) education financing planning is carried out with the stages of problem analysis, potential analysis, and community interest analysis based on deliberation for consensus; b) the implementation of education financing is carried out through mobilising resources and funds, administrative and coordination activities, and the elaboration of programs with the principles of the community, by the community, and for the community; c) education financing is evaluated by comparing planned budget expenditures and realising their use with the principles of honesty and transparency. Community empowerment in education funding that is culturally religious and functional.

3) Inhibiting and supporting factors include the flow or process of disbursing funds, which must follow a systematic procedure, but support is good cooperation and professional education staff.

Keywords: Community Empowerment; Education Funding; Dayah.

INTRODUCTION

Aceh is one of the provinces where the Central Government has given privileges to organise education with a national education system adapted to the local community's characteristics, potential and needs. This is by the mandate of Law of the Republic of Indonesia No 11 of 2006 concerning the Government of Aceh, in article 216 § 1 of the Law, which mandates that: "Every Acehnese has the right to receive quality

and Islamic education in line with developments in science and technology".

Based on the above juridical basis, education held in Aceh, particularly Islamic boarding school education, must be found on the principles of democracy and justice by upholding human rights, Islamic values, culture and national diversity by guaranteeing the quality of graduates who can compete in the national job market. , regional and global, as well as being an impetus to build a better socio-economic, political and life for the

people of Aceh as described in Aceh Qanun No 9 of 2018 concerning the Implementation of Dayah Education.

The contribution of Dayah's education to nation-building is evident. Since the era of the struggle for independence, many figures of the independence movement were born from Islamic education backgrounds and after Indonesia's independence until now. Therefore, Dayah's education has been felt and recognised as an educational asset that must also receive attention.

The problem and, at the same time, the big challenge currently being faced by the world of education, especially in Aceh, is in the form of demands from the people who want an increase in the quality of the Dayah education system, which can provide effective and efficient educational process services and educational outcomes so that education is truly able to give a positive contribution to the welfare of society.

People in the past thought that implementing education was only the government's responsibility. As a result, education is claimed to be separate from the needs of society, from the world of industry and work. Narrow intellectualism has separated the world of education from real life. This condition causes education to be considered unable to produce quality Human Resources, even though schooling is believed to be a nation-building investment that will increase "Human Capital" as an asset for this development.

The author [1] explains that participation is a form of direct and indirect participation in an activity to achieve a common goal. Participation does not automatically occur if there is no good cooperative relationship between the institution and the community.

The provision of education funds and the responsibility for financing education have been regulated in the applicable laws and regulations. In Law No 20 of 2003, chapter XIII, article 46 § 1 concerning funding responsibility states that education funding is a shared responsibility between the Government, Regional Government and the Community. Then, Article 47, §§ 1, 2 concerning sources of education funding states that educational funding sources are determined based on fairness, adequacy, and sustainability principles. Local governments and communities direct existing resources by applicable laws and regulations.

Dayah Darul Quran Aceh is a new dayah formed at the end of 2016. From now on, it is abbreviated as DQA. This Dayah stands on waqf land covering an area of ± 7 hectares. In the teaching and learning process, an integrated curriculum between the curriculum of Modern Islamic Boarding Schools, Dayah Salafiah, and the curriculum of the National Education Office at the junior high school level, with a 3-year dormitory system, is implemented. Dayah Darul Quran Aceh currently has 66 male students from Aceh, Jakarta, and Malang as first-generation students.

Hajarul Akbar Alhafizh, MA, who is the leader of DQA, explained that:

Darul Quran Aceh is the home or place where our youth generation examines and manifests their love for the Koran with all of its sides, starting from its tahsin/tajwid, its reading, its recitation, its understanding and practice of the values of the Koran itself. DQA is here to provide the best solution for parents and sons of Putri Aceh to study the Koran as a whole. As we know today, some memorise the Koran but lack understanding or are not applicable. In this case, DQA tries to concoct all of these sides, starting from reading, understanding, memorising and experiencing the Koran by first understanding the science of tools or the basics of Nahwu and Sarf.

In terms of financing, education at DQA relies more on institutional independence; funds are obtained from various existing sources in the form of donations from students and parents, endowments, infaq, and alms.

Dayah Darul Quran Aceh Besarit is acknowledged to have successfully carried out a pattern of community empowerment to actively participate in financing Islamic boarding school education. So that these pesantren can develop their practice of Islamic boarding school education socially with good quality; quantitatively, this community participation can be seen from the community's contribution in granting waqf land covering an area of approximately seven hectares in 2016. How is the management of community empowerment in financing education carried out by Dayah Darul Quran Aceh Besar? This is an exciting phenomenon and very important to be studied further through research.

METHOD

This research requires exploration to understand and explain what is being researched through

intensive communication with various data sources to provide deep meaning to see existing phenomena, so the appropriate method used in this study is a descriptive-analytical method using a qualitative approach.

The data collected in qualitative research is in the form of words. The rest is additional data, such as documents. The primary data sources are recorded through written notes, audio recordings, and photographs. Based on the assertions above, the subjects in this study consisted of Leaders of the Islamic boarding school Dayah Darul Quran Aceh Besar, treasurers of the dayah, leaders of the Human Resources Development (known with PSDM) department, heads of the education department, and heads of the social and Ummah Productive Fund departments (known with DPU), education management staff of Dayah Darul Quran Aceh Besar.

The instruments in this study were used to collect data regarding community empowerment strategies in financing education at the Darul Quran Aceh Besar Islamic Boarding School through interview guidelines, observation guidelines, and documentation studies.

Data analysis in this study was carried out by organising the data obtained by putting it into a category, describing the data into units, analysing important data, compiling or presenting data according to the research problem in the form of a report and making conclusions so that it is easy to understand. Activities in qualitative data analysis are carried out interactively and continuously until complete so that the data is saturated.

RESULTS AND DISCUSSION

Educational Patterns Developed by Dayah Darul Quran Aceh Besar. In the results section of the research above, the researcher has described that the educational pattern implemented at Dayah Darul Quran Aceh (DQA) is not much different from that of other educational institutions. Dayah Darul Quran Aceh is a modern Islamic boarding school education institution that develops an integrated pattern of Islamic boarding school education that seeks to produce its students to have excellence in religious knowledge, memorising the Koran, and in the field of secular sciences. The author [2] states that integrated learning (integrated learning) refers to an approach that is oriented to the learning process, which is more project-based (orientation tuqas),

not content-based (introduced to the material). The content-based curriculum focuses more on memorisation or technical detail, so less refers to the thought process.

This institution has a particular institution to support the learning process and achieve the educational targets arranged from the start. The results of interviews with DQA leaders stated that: "Darul Quran Aceh has a vision, namely to become a professional and quality Islamic education institution that can produce memorisers of the Qur'an who have morals, Islamic character and have competence in the academic field". Furthermore, the DQA leadership stated that the mission derived through the vision above was:

1. Realising quality Islamic educational institutions in tahfidz Al-Qur'an and academic fields that become ideal schools for the community.
2. Carry out effective learning and coaching in tahfidz, Islamic boarding schools, and the National Education Curriculum.
3. Producing generations of hafidz Al-Qur'an who have a noble character, are knowledgeable, and manhaj Ahlussunnah Waljamaah.
4. Carry out integrated and innovative curriculum development to produce outstanding students.
5. Carry out the development of educational human resources, academic staff and school components so that they develop optimally.

From the explanation of the Dayah leadership, we can conclude that the lesson plan that is carried out must follow the flow of what has been prepared through the vision and mission, as well as the educational targets that are carried out by what has been formulated in the eye and mission of the Dayah.

On another occasion, the researcher discussed the contents of the interview with the secretary of Dayah Darul Quran Aceh, who stated that: "DQA has several excellent programs that determine whether education is successful or not implemented; students here are required to take part in the six programs, namely the area of memorisation, the field of morals, the domain of Islamic insight, the field of Arabic, the lot of English, and the field of academic competition. This is what was conveyed by [3]: Terminologically, a school develops a flagship program to achieve excellence in its educational output. The input, educational process, teachers and educational

staff, management, educational services, and supporting facilities must be directed to support the achievement of these goals.

The following further explains the flagship program delivered by the secretary of Dayah Darul Quran Aceh, a pattern of education being carried out. The researcher tries to describe it in the following paragraphs.

The first is the tahfiz Quran program, in the form of memorising activities and depositing memorisation by students to musyrif or halaqah teachers. This rote deposit activity includes depositing new memorisation, old memorisation or muraaja'ah, and talaqqi remembering preparation. The tahfiz program starts when students are declared to have graduated from the tahsin program and ends when students are no longer students at Darul Quran Aceh. The minimum annual memorisation target for each DQA student is five juz, and the maximum mark is not limited.

The second is a noble character, and Morals are one factor determining the degree of one's Islam and faith. Good morals are a reflection of the good faith and sharia that one believes in. Poor morals indicate a person's poor understanding of faith and sharia. The abominations and abominations are not in the slightest bit from Islam, and in fact, the best Muslim people are those who have the best morals. Darul Quran Aceh curriculum seeks to form and give birth to students who have noble character. In general, education in Indonesia aims to create a better generation of morals, as stipulated in the Law on the National Education System No 20 of 2003, which states that Producing people who believe and fear Allah SWT, have a noble character, have personality, are independent, tough, intelligent, creative, skilled, disciplined, work ethic, professional, responsible, productive, healthy physically and spiritually, have a national spirit, love the motherland, social solidarity, awareness of the nation's history and attitudes.

The third is Islamic insight, understanding Islam comprehensively (thoroughly) in various daily life activities. Islam is a religion that regulates all dimensions of life to achieve happiness in the hereafter. Santri learns to know, understand and apply Islam in daily practice and can respond to life's problems from an Islamic point of view.

Fourth, they can speak Arabic. Arabic language education is the central supporting science to make it easier for students to learn, understand,

practice and memorise the Qur'an. Reliable teachers teach Arabic language education graduates from Sudan and Egypt. While at Dayah Darul Quran Aceh, Santri is used to communicating every day in Arabic with teachers and fellow friends. Able to speak English, English education is the primary supporting knowledge to enable Darul Quran Aceh students to communicate with the outside world. Darul Quran Aceh students must be able to explain the Koran in English to convey the Koran using the primary language of communication at the international level.

Regarding this flagship program in the language field, the author [4] states that: Improvements to learning Arabic and English are a must in terms of management, curriculum, process, or evaluation because, without reconstruction of language learning, students' knowledge of the language will increase, and it will be easier for them to understand other subjects. One of the efforts in this reconstruction is to create a language environment. Engineering the learning environment is an effective way to achieve language proficiency. Language learning that only focuses on linguistic theories will result in passive learning, so it needs a combination of bi'ah lughawiyah (language environment) with the application of linguistic principles that can lead learners to achieve the four language skills: speaking, writing, listening, and grammar.

The fifth is Having Reliable Academic Competence. The curriculum compiled at Darul Quran Aceh is to produce human resources for students with academic competence in various fields of study, both science and religion, while still being a hafiz of the Koran. A hafizh is not only a scholar but can also be a doctor, technocrat, scientist and scientist. Meanwhile, their chests are embedded with the Koran, which encourages them to become full-fledged Muslims. This significant program begins with a psychological assessment that will be carried out in class III SMP Dayah Darul Quran Aceh.

The memorisation program in learning has been running since the institution's establishment. We are memorising vocabulary in Arabic and English, for example. The process of learning a language is a suitable method of learning a language. The purpose of this process of memorising vocabulary is as stated by [5], namely: The primary purpose of this memorisation is as a first step for students to master the basics of English. Memorising lots of vocabulary words and understand-

ing tenses are the first steps for students to develop good communication skills. As we know, the development of science and technology has positive and negative impacts.

These references show that the purpose of the memorisation process is for the students to master Arabic English and the Koran vocabulary.

Strategic Steps for Community Empowerment in Funding Aceh Besar Dayah Darul Quran Education. The results of the researcher's interview with the leadership of Dayah Darul Quran Aceh related to the steps in financing education have been previously described. In this section, the researcher wants to explain this further.

It was previously said that the steps in financing education consist of three stages, namely the planning stage, the implementation stage, and the reporting stage. Related to the first stage, namely the planning of education financing at Dayah Darul Quran Aceh, initially, the administrators of Dayah Darul Quran Aceh gathered the guardians of students at the beginning of the school year (month of Shawwal) to jointly deliberate between the guardians of students and administrators to discuss the need for payment of tuition fees. We have previously explained the demand for the SPP funds to me.

Then, the strategic steps for community empowerment carried out by Dayah Darul Quran Aceh in financing education are carried out through a directed and measurable planning process, implementation by providing the best service to the community, innovative empowerment programs, and honest and transparent reporting.

Furthermore, the impact on community empowerment in financing education is stated that the effect arising from the strategy used is a positive response from the community by taking an active role in financing Islamic Dayah Dayah Darul Quran Aceh education in terms of the quantity of funds collected is quite large and sufficient so that the activities and programs of dayah education Dayah Darul Quran Aceh can be appropriately implemented.

From the interviews and discussion above, it can be concluded that the steps in community empowerment in financing education at Dayah Darul Quran Aceh are carried out in three stages. They are starting from planning, implementation, and reporting. At the planning stage, the Dayah made a draft for the needs of students, teachers, facilities, and infrastructure in learning. Then, the

breeze was presented to the community so they could think about it together in procurement and fulfil all needs according to the draft. The results obtained from such steps are to get a positive response from the community, and they can provide full participation in the continuity of education at the Dayah Darul Quran Aceh.

In connection with the second stage, namely the implementation stage, it is stated that the implementation of financing for Dayah Darul Quran Aceh must follow a draft plan prepared through meetings with all teachers, committees and leaders. It is not permissible to use the budget outside of planning needs. If other conditions require using the budget, Dayah, as executor, must hold a limited meeting with the field concerned, and the committee returns. However, incidents of using education funds outside of planning are said to have not occurred.

The best service provided to students and parents of students (as a community) is also a top priority in the implementation of education financing. Implementing education financing is inseparable from the best service provided to students while studying and in the hostel complex. Then, besides the assistance, the Dayah also presented the superior programs of the Aceh Dayah Darul Quran to the community so that they knew that this common goal must be carried out together.

From the interviews and discussion above, we can conclude that the implementation of education funding must follow the draft of the plan by the types of programs to be implemented in the budget year under planning. Then, in this implementation, we must also provide the best service to students and the community.

The next step, namely the third stage in the education financing strategy at Dayah Darul Quran Aceh, is the reporting step. As previously mentioned, the strategic steps carried out by Dayah Darul Quran Aceh consist of three steps: planning, implementation, and reporting.

The reporting carried out by Dayah Darul Quran Aceh has an honest and transparent character. Reporting on education financing at Dayah Darul Quran Aceh is carried out by upholding the values of honesty and transparency. No single activity is hidden from reporting and vice versa; no additional programs use education funds. This report was compiled by the treasurer of the Darul Quran Aceh Middle and High School. Then,

the information that the treasurer made would be brought to the treasurer of Dayah Darul Quran Aceh, and then we discussed the report together, which we then conveyed to the community through meetings with parents/guardians of students at the end of the semester.

The secretary of Dayah Darul Quran Aceh stated that reporting is based on the activities carried out and is made honestly, fairly, and transparent to the public.

The conclusion that researchers can draw from the discussion above is that transparency can be understood as openness, meaning that honesty is needed in managing school finances. This transparency concerns the openness of school revenue sources, the amount of funds managed by schools, and accountability for using school funds. Through exposure, it will generate trust from school stakeholders, including the government, the wider community, parents of students, community leaders and other elements. This transparency is essential, for example, in the School Revenue and Expenditure Budget Plan (RAPBS), where information regarding the RAPBS can be easily accessed and criticised.

In addition to the explanation above, this section is also considered essential to discuss in more depth the process of budgeting for education funding in Dayah Darul Quran Aceh, sources and allocation of the education budget in Dayah Darul Quran Aceh, and supervision and accountability for education financing in Dayah Darul Quran Aceh. The stages of community empowerment in education funding are inseparable from the management process itself, namely setting up a strategy and steps that are specific or detailed. According to [3]: Management is a unique process consisting of the following actions: planning, organising, changing, and controlling, which are carried out to determine and achieve the goals set by using human resources and others.

So, from the references above, developing concepts and strategies in financing education at Dayah Darul Quran is inseparable from the management process. Education financing management is a process of planning, organising, reimbursing, and controlling actions intended to achieve the desired goals.

The first stage of Dayah Darul Quran Aceh is the budgeting process for education funding at Dayah Darul Quran Aceh. Discussing the management of financing related to the education

budgeting process at Dayah Darul Quran Aceh, the first process begins with holding an annual working meeting (known as RAKER) with meeting members. Then, meeting members make a draft budget. A proposal was made from the draft, which would later be submitted to the Dayah Darul Quran Aceh Foundation for ratification or approval. The draft was first discussed with the school principal and then submitted to the Dayah Darul Quran Aceh Foundation. After being approved by the foundation, it is included in the School Activity Plan and Budget (known as RKAS) with the knowledge of the foundation.

Then, the treasurer of Dayah Darul Quran also conveyed the same thing, namely the process for budgeting education costs at Dayah Darul Quran Aceh, which previously held a meeting. At the work meeting, the Principal, deputy head of secretary, school committee, and teachers were there. Meeting members are tasked with making a draft. If the draft has been made, it will be submitted to the foundation. But, later, you must propose first if you want to hold an activity or need funds for school needs. After that, new money can go down to the school.

The planning process is critical if the madrasah is referred to as the Madrasah Activity Plan (RKM). In schools, it is stated with the RKAS. This was conveyed by [6] which said that:

The formulation of the RKM or RKAS is essential because the RKM/RKAS can be used as a working guideline (frame of reference) in developing madrasahs, a basis for monitoring and evaluating the implementation of school development, as reference material for identifying and proposing educational resources needed in the development madrasahs, as well as the formulation of the RKM/RKAS, is to be able to find out in detail the actions that must be taken so that the goals, obligations and targets for the development of madrasahs can be achieved, and can be accounted for. The last is to consider stakeholders' expectations and the school's actual conditions.

This aligns with the program delivered by the School Treasurer and Laboratory Treasurer related to the education financing budgeting process, which is included in the education financing management at Dayah Darul Quran Aceh. He said a meeting was held regarding the budgeting process at Dayah Darul Quran Aceh, drafting the RKAS and then making a proposal. Funds will go down if the proposal submitted is approved in advance by the foundation.

From the interviews and discussion above, it can be concluded that the education financing budgeting process is included in the education financing management at Dayah Darul Quran Aceh. Based on the answers from the informants that the researchers have described above, we can understand that the financing budgeting process at Dayah Darul Quran Aceh begins with the holding of an RAKER. Members of the meeting arrange schools. Members of this annual work meeting consist of the Principal, Vice Principal, School Committee, and teachers.

Then, in the meeting, each member makes a draft budget. After the draft is completed, the following process is to submit it to the Aceh Dayah Darul Quran Foundation for approval. For any activity or need requiring funds, a proposal is made from the previously prepared draft containing details of the actions and the funds required.

The proposal is given to the Principal to be submitted again to the Dayah Darul Quran Aceh Foundation. If the foundation approves the bid, the funds will be given according to the amount needed by the school. Before determining the estimated funds for certain activities or buying specific equipment, the Principal receives reports from the teacher and treasurer regarding what is needed or needs to be repaired so that when the annual work meeting is held, it can be included in the RKAS.

Next is about sourcing and allocating the education budget in Dayah Darul Quran Aceh. The source of the Aceh Darul Quran Dayah funds comes from the community in the form of tuition fees and funds from the School Operational Assistance (known as BOS). The allocation of funds also varies, which is sure to meet the needs of schools and Islamic boarding schools that are being led, such as for developing facilities and infrastructure, spending on goods and services, activities planned at meetings, and so on.

Based on the description above, the researcher can conclude that the sources and allocation of the education budget for Dayah Darul Quran Aceh regarding the origin of the education budget for Dayah Darul Quran Aceh comes from direct funds from the community with the payment of tuition fees for their children as students, external funding assistance/grants from both the Aceh Besar District Government and the Aceh Provincial Government, and BOS funds.

These sources of funds are then allocated or used to finance school and Islamic boarding school programs, such as funding the development of facilities and infrastructure, teacher salaries, and routine expenditures (goods and services). The sources that Dayah Darul Quran Aceh receive come from various sources, and the use of these funds also varies depending on the needs that have been prepared through the annual budget draft meeting. BOS funds, for example, already have specific provisions and regulations for their allocation through the technical and operational guidelines provided by the district and provincial education offices. Not all schools need to use BOS funds; the same goes for sources of funds from tuition fees and grants.

The supervision and accountability of education funding at Dayah Darul Quran Aceh, the Dayah Darul Quran Aceh Foundation carries it out, then from parents represented by the School Committee, from the UPTD education office itself because in planning school budgeting activities or in terms of preparing the RKAS it must be knowledge of the foundation and service. So, the use of education funds can not be arbitrary or playful. Then, for accountability for financing, it is accountable to the Aceh Dayah Darul Quran agency and foundation.

Supervision is carried out by the Aceh Dayah Darul Quran Foundation, apart from the foundation from the agency, because all the estimated funds needed or budgeted for by the school and the Dayah parties from the agency know about it. So, the department understands the budget that goes in and out of this school. Accountability is the same, primarily responsibility to foundations because schools receive funds from foundations.

From the results of the interviews and discussion above, it can be concluded that the supervision of education funding at Dayah Darul Quran Aceh is carried out by the Aceh Dayah Darul Quran Foundation itself, the education office for funds sourced from BOS, and the Dayah Education Office. Then, accountability for school financing was handed over to the School Committee, the Dayah Darul Quran Aceh Foundation, and the agency. The Dayah Darul Quran Aceh Foundation is carried out by a team specially formed to oversee the use of previously allocated funds. The form of school accountability for using school funds is to compile and make monthly budget reports and report to the Dayah Darul Quran Aceh Foundation, the School Committee and the offices of both

the Education Office and the Dayah Education Office.

Supporting and Inhibiting Factors of Community Empowerment in Funding Education at Dayah Darul Quran Aceh Besar. Obstacles and challenges are obstacles faced by educational institutions. This can be influenced by factors from outside or within the institution itself. In the context of empowering the community in financing education at Dayah Darul Quran Aceh, a leader and all of his workforce are expected to be able to analyse threats that will affect the achievement of the goals of the educational institutions he leads, then be able to overcome and minimise these obstacles and challenges or even make them strengths and opportunities for even better. If this cannot be done, it will become a bigger problem for the educational institution. The author [7] states that:

Problems can be interpreted as deviations between what should be and what happened, between theory and practice, between rules and implementation, and between plans and performance. Then, these problems can be known or searched for if there are deviations between experience and reality, between what is planned and truth, and if there are complaints and competition.

From the results of interviews with the leadership of Dayah Darul Quran Aceh regarding the supporting factors and obstacles faced by Dayah Darul Quran Aceh in empowering communities in financing education, the following researchers describe them systematically.

1. Supporting Factors for Community Empowerment in Education Funding at Dayah Darul Quran Aceh. The following is a discussion of the results of interviews with Dayah Darul Quran Aceh leaders, foundation treasurers, and deputy principals related to the supporting factors in the management of education financing at Dayah Darul Quran Aceh. It was stated that judging from the process of disbursing funds, it took a long time, namely approximately two to five working days. Even though the existing funds had been allocated from the foundation, they only double-checked so there were no mistakes in making decisions. The school's deputy principal stated that the supporting factors for financing education in schools were good cooperation between the foundation and the school, namely Darul Quran Aceh Middle School and High School itself, making it easier to do budgeting or carry out ac-

tivities according to what has been budgeted. Thus, the education financing management process can run smoothly.

The leadership of Dayah Darul Quran Aceh has more clearly stated the supporting factors in the community empowerment process in financing education, namely the approach by which Dayah Darul Quran Aceh is carried out, which is not easy. Of course, there are obstacles, but there are also supporters. Generally, a supporting factor in community empowerment in education financing is good cooperation from all stakeholders, the wider community, parents/guardians of students, teachers, and all elements of education. The advantages cover the disadvantages mentioned earlier. If we don't work together, all these processes won't automatically run as we expect. We, as leaders, always say that discipline is the key to carrying out our duties. Furthermore, accuracy is the key to making mistakes at work.

Based on the results of the discussion above, there are several supporting factors in the management of education financing at Dayah Darul Quran Aceh. Namely, parties related to education financing budgeting can work together well so that the preparation and reporting can be carried out smoothly. Then, the supporting factors are also seen from the education staff, who are already professionals, so the education financing process can be carried out correctly.

2. Factors Inhibiting Community Empowerment in Funding Education in Aceh Dayah Darul Quran. Previously presented in the research results section, the Treasurer of the Dayah Darul Quran Aceh Foundation said that the obstacles encountered in the community empowerment process in education financing were regarding disbursing funds because, in the method of disbursing funds, one had to propose first, even though at the budget meeting they also offered. The foundation will examine proposals submitted, and then if the foundation approves the bid, the funds can only go down to the school. The only obstacle was the disbursement of funds, which was not fast enough because the process was also not easy, especially since Dayah Darul Quran Aceh is one of the favourite Islamic boarding schools in this region.

According to the explanation above, it can be concluded that the obstacles that exist in community empowerment in financing education in Dayah Darul Quran Aceh are found in the process or flow of funds disbursement. This means these

obstacles are more dominant than within the Dayah Darul Quran Aceh. The method of disbursing funds, which was not easy, made it difficult for schools to meet the needs as soon as possible for the students to use. In addition, the discipline of parents/guardians of students in paying tuition fees is also an obstacle in this process. However, the leadership handled the delay in payment, and so far, the financing process has been running as it should.

CONCLUSIONS

Weak education funding will become an obstacle to improving education quality, so efforts to strengthen education funding must be made. Community participation is considered appropriate for maintaining education financing as a form of just democracy, which means that the community has the right to receive quality education and is obliged to provide funds.

The pattern of education developed in Dayah Darul Quran Aceh Besar has been established by the formulation of the vision and mission. It uses a dual curriculum between the national education curriculum and the Dayah curriculum. The Dayah curriculum has excellent programs, namely the field of memorising the Koran and the area of Arabic and English.

Community empowerment steps in financing Dayah Darul Quran Aceh Besar, including First, education financing planning is carried out with the stages of problem analysis, potential analysis, and analysis of community interests

based on deliberation for consensus. Second, the implementation of education financing is carried out through mobilising resources and funds, administrative and coordination activities, and the elaboration of programs with the principles of the community, by the community, and for the community. Third, education financing is evaluated by comparing the planned budget and realising its use with the principle of budget transparency.

Community empowerment in financing Dayah Darul Quran Aceh Besar, which has been implemented so far, is a concept of community participation in financing education that is functionally religious-cultural which consists of (1) the process of budgeting for education financing; (2) education budget sources and allocations; and (3) supervision and accountability for education funding in Dayah Darul Quran Aceh.

The inhibiting and supporting factors for community empowerment in financing Aceh Besar Dayah Darul Quran education are inhibiting factors, namely the flow or process of disbursing funds, which must follow a systematic procedure. Then, the supporting factors are good cooperation and the availability of adequate funds and professional education staff.

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The Influence of Political Advertising on the Voting Patterns of Rural Residents in Electoral Processes: A Study on the Role of Radio Campaigns

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Abstract. The study was conducted to determine the extent to which radio political campaign messages influence voters' behaviour during elections. The study also examined the influence of other political campaign techniques used by political parties to influence voters' decisions in their favour. The study determined whether frequent exposure to both pro and against candidates' radio political campaign messages influenced voters' decisions on election day and also investigated the extent of the influence of opinion leaders among voters during elections.

The study examined the descriptive survey; the sample population was 400 respondents who were residents in a random sampling technique in Lagos. The instrument used for the data analysis was frequency count and simple percentage. Findings from the study show that radio in Nigeria helps in political participation by motivating citizens to vote and be present for manifesto reading, unbiased in their choice of candidates, etc. It encourages people to attend rallies and be informed about the decision-making process, which is very important in the electoral process. In summary, this study sheds light on the impact of radio political campaign messages and other campaign techniques on voters' behaviour during elections. It underscores the importance of radio in promoting political participation, unbiased decision-making, and informed choices among voters. However, caution should be exercised to avoid negative influences such as sentimentalism, ethnic bias, and religious bigotry, which can undermine the integrity of the electoral process and harm society.

Keywords: Voters' behavior; Political campaign techniques; Decision-making; Radio political campaign messages; Political participation

INTRODUCTION

Modern-day politics demand that political parties serve as a platform through which politicians contest for different elective positions. And for these electorates to participate, author [1] observed that they (electorates) are mobilized to vote candidates into various offices. These mobilizations are done by producing and airing or publishing political campaign messages to educate and influence voters to act during the elections. The author [2] also observed that, as Nigerians conducted their 2019 general elections, such political communication in various campaign messages was witnessed. He asserts, "Radio, which is one of the most frequent mediums

used by campaign organizers and political parties, witnessed such presence of political campaign messages even higher". Today, voters in Nigeria listen to and see various political campaign messages through listening to radio. The author [3] showed that Nigerians depend heavily on the radio as a significant public information source. With this development, authors [4] showed that most of the political parties sponsored one form of political advertising or the other, in order to bring to the attention of the voting public, the parties' 'political manifestoes as well as the parties' candidates for the various elective offices in the country. The essence of their campaign was to sell their parties and candidates.

Nigeria is a country that can be described as a nation where people are guided mainly by their ethnic affiliation and identity. This identity led to the proliferation of local media outfits, especially local radio stations. These local radio stations give all the various community leaders in the locality advantages by allowing them to speak to their ethnic community members or tribal members. This is one reason that makes local radio stations more patronized by the various community members. And this also allows community leaders to speak to their co-community members directly. The author [5] observed that radio programs are usually timely and capable of extending messages to the audience no matter where they may be as long as they have a receiver with an adequate power supply. The absence of such facilities as road, light and water is no hindrance to the radio.

Similarly, such obstacles as challenging topography, distance, time and socio-political exigencies do not hinder radio performance. He further observed that illiteracy is no barrier to radio messages since such statements can be passed in the audience's language. Extensive use of mass media as an effective communication tool is evident during political campaigns worldwide. It stands out as a political mobilization medium in different countries. Its coverage, diversity and change in social context have made it a social mobilization tool. Television, radio, newspapers, and posters are among the different forms of mass media that are primarily used in political mobilization during the election period worldwide [6, 7].

Politicians have adopted political advertising as a form of wooing their supporters. Political advertisement is done in return for supporting or opposing a candidate for election to public office [8]. The radio and mass media have been important pillars of the Nigerian democratic system. Specifically, they have played critical roles in the electoral process by acting as significant sources of information, providing essentially costless and reliable details, leading to a more balanced education and opinion formation among the voting public. Therefore, the connection between the politician and mass media should be contextualized from the perspective of the politician who wants to win an election, whether by hook or crook. In the process, they would work hard to capture the attention and interest of the audience that the mass media controls [3].

Radio is regarded as the most effective medium because it transcends the barrier of literacy and it covers a vast geographical region. Thus, when skillfully used, radio broadcasts have proven to be the most effective medium of communication with the population [9]. Radio promotes economic development, stimulates political participation and arouses national consciousness and unity. A radio station needs to be independent, free and responsible to the public so that awareness is created for the citizens to know the problems and issues confronting the state and their possible solutions and consequences [9], when it is time for elections in a country. Politicians or people running for a particular seat in politics use this form of mass disseminator to get people's interest and vote for them.

Radio is regarded as the most effective medium because it transcends the barrier of literacy and it covers a vast geographical region. Thus, when skilfully used, radio broadcasts have proven to be the most effective medium of communication with the population [9]. Radio promotes economic development, stimulates political participation and arouses national consciousness and unity. A radio station needs to be independent, free and responsible to the public to create awareness for the citizens to know the problems and issues confronting the state and their possible solutions and consequences [9]. Voting is a political behaviour of choice or preference based on the information available to the voter [2]. The media's plan is always to sway the mass's opinion on a particular issue to achieve a specific result. No difference is found in politics and the influence language of media reporting approach or attitude of report exert on voting behaviour. The influence of media on voters and their conviction towards any candidate as has been sold to them by the press produces leadership. Leadership has been a source of attraction, estimation, legend, and myth since the beginning of civilized societies. The Egyptians, for instance, had hieroglyphics for leadership, leader, and follower 5000 years ago. Both Plato and Aristotle were not exempted from this issue as they wrote about leadership, contemplating the requirements of the ideal leader in a perfect state. Many countries in the world, particularly in the continent of Africa, have experienced leadership ascendancy through elections and some through coup d'état, and the country Nigeria is not an exception in her developmental stages since October 1, 1960, when she gained her independence. However, democratic

political development in Nigeria has taken a centre phase in recent times. This is affixed on the fact that since May 29, 1999, the country seems to have maintained a stable democratic dispensation. Nevertheless, one common feature of the recent wave is media reporting influence on voting behaviour and leadership ascendancy.

Statement of the Research Problems. Radio as a communication medium influences how people experience their political life by regularly broadcasting news material on current affairs, politics and other areas [7]. Radio is still the best way for political parties and candidates to influence people. The issue is whether the enormous political campaign messages by the parties, candidates, and other political institutions being aired on local radio have a bearing on creating and sustaining awareness of a party and/or its candidate(s) for election. Furthermore, it is a question to determine whether there is a relationship between radio political campaign messages, interference of the opinion leaders on the voters' behaviour leading to participating during the elections, and the outcome of the election result.

The objectives of this study are to:

1. To determine how radio political campaign messages influence voters' behaviour during elections.
2. To examine the influence of other political campaign techniques used by political parties to influence voters' decisions in their favour.
3. To determine whether frequent exposure to both pro and against candidates' radio political campaign messages influence voters' decisions on election day;
4. To investigate the extent of the influence of opinion leaders among voters during elections;
5. To examine the correlation between the influence of radio political campaign messages and the opinion leaders on the voters' behaviour and election outcomes.

Literature Review

Transistor radio was the premier information communication channel. It was used for several decades before other information communication channels were invented. Its existence could be dated back to the twentieth century. Resource [10] asserted that a transistor is a semiconductor device with at least these terminals per connec-

tion to an electric circuit. Tracing the historical development of radio from distribution system to radio diffusion or radio fusion and transistor radio dry cell battery was the only power source. Its radio batteries are very cheap and readily available even in the most remote areas of Nigeria. Still, now digital radio had replaced the transistor radio.

The power of information has taken over globally. Media, through telecommunications, are changing how information and culture function globally. This has brought the identity principle to the fore, where individuals, groups and communities can adequately express themselves without borders [11]. Political possibilities have risen from these technological developments. Radio, especially with television, reaches the poorest rural areas in Nigeria. According to [11] combining pictures and sounds affects viewers emotionally and intellectually; campaign jingles and billboards affect viewers emotionally and intellectually. It concurs with [12], who opines that the principle of the public sphere assumes freedom of speech and assembly, a free press and the right to freely participate in political debates and decision-making because when it has caused intellectual assimilation, one can then make a clear decision on what to do or join in. Mass media, which have become indispensable in Nigeria today, have functions which they perform according to [13] include

- 1) The surveillance of current events that are likely to affect citizens positively and even negatively;
- 2) Help to identify critical socio-political issues;
- 3) Provide a platform for advocacy for causes and interests;
- 4) Functions to transmit diverse contacts across the various dimensions and factions of political discourse;
- 5) Aid in the scrutiny of government officials and their institutions and other agencies.

These go a long way to influence people on public activities, events and even public policies in governance.

Media information often accompanies propaganda to influence the audience, especially in political campaigns and rallies. Propaganda, which comes from the Latin verb 'propagare', means to reproduce, spread or transmit, usually from one person to another. The propaganda literature can

be traced to Pope Gregory XV in 1622. At this time, propaganda was seen more as an object of faith dissemination or communication than an object of statecraft. In contemporary global relations, propaganda is seen as the deliberate effort by the government to influence the attitudes and behaviour of foreign populations or specific groups within those populations in the expectation that the affected groups could influence the attitudes and actions of their government.

Scholars on the issue of radio coverage of elections in Nigeria hold different views and opinions. According to [14], Nigerian radios do not correctly report elections as they exhibit deprived news verdicts as they say election events. They display high inefficiency in their attempt to differentiate between estimation and information, with gross negligence with facts handling and the ethics of reporting professionalism. The author [15], in agreement with Oboh & Hudson's view, adds that the deprived news verdict is caused by the radio ownership factor, which poses a destructive threat to radio coverage of elections and the strong development of democracy. The ownership factor, therefore, is a threat to professionalism and the healthy growth of democracy. The author further observes that the manner of the coverage underwrites the intensification or decrease of clashes by the way they collect, process, bundle and broadcast information to the public. Both authors conclude that effort should be made to make available channels and elements to provide an arena for the radio to realize the expected role in politics. The author [16] made another critical point by bringing to the fore that Nigerian reporters are sporadically obsessional and inconsiderate in their handling of political issues, consequently fetching some newsmen the wrath of the law. In like manner, authors [17] discussing the radio coverage of the election and the regulatory environment in Nigeria stress that Nigeria's constitution made provision of three legal apparatuses that control radio coverage of the election, including the Electoral Act, the Nigeria Broadcasting Code and the National Broadcasting Commission Act (NBC). They argue that these bodies provide a legal framework for election coverage. Still, the overlooked points include the inequality in the coverage opportunity given to radio houses, state-owned radio houses flouting rules of the range, and the incumbent power during elections influencing the press, consequently making radio coverage of elections and their reporting lopsided.

How a particular group of people vote during the election is known as voting behaviour. Voting behaviour means studying voter's devices, alternatives, programs and ideology. Voting behaviour also enables one to decide on running the government. Scholars like [18] have identified factors which determine voting behaviour to be:

Primary group influence: Where family and friends determine voting patterns, this involves face-to-face relationships.

Class factor: Has to do with occupation, income, educational status, and general style of living in Nigeria shows situations where the interest of the majority outwits the minority few. In Britain, the middle and upper class constitute less than 40% of the population aligned to the conservatives. The lower and working class are more inclined to the Labour Party. In the USA, class considerations are of less importance.

Religion: Voters tend to wield towards their religious groups. No party in Nigeria is tied to religious groups, but Muslims usually support their members just like Christians. In the US, Catholics and Jews are generally supporters of the Democratic Party.

Ethnicity: Contributes a lot to party affiliations, especially in multi-ethnic countries. Poverty has ravaged society today, especially in Nigeria, where a dollar goes for N478 (Naira). Politicians have come to influence poor voters with bags of rice, money, and other food items to get their votes. Furthermore, regionalism, ethnicity and class were not left out as they influenced the voting behaviour in Zimbabwe's election of 2008. Most citizens voted for a particular candidate because he is his relative. Others voted for candidates they felt would represent them as civil servants; others voted for their candidate because they thought they were ruling class members and should maintain someone who would protect their interests.

Authors [19] observed that gender bias and facial inferences influence voting behaviour. The research concludes that in most cases, people use shallow decision heuristics like the impression of competence made solely from the facial appearance when deciding on a candidate to vote for. In his view, voters who care about policy topics would always require masculine leadership and prefer male leaders. In contrast, they are more likely to vote for women when they care about issues that need a feminine leadership style. This

is because roles requiring the ability to direct and control people are often regarded as masculine. After all, it is generally believed that men are more potent than women. Also, when people feel they need a leader who will effectively play roles like interpersonal sensitivity, they will likely vote for a woman because it is believed that women are more sensitive than men regarding interpersonal issues. In essence, emotions and feelings shape voting behaviour.

Social networking sites are acting as an excellent medium for view mobilization. Authors [20] discovered that the relative volume of tweets mirrored the result of the German federal elections. The study found that young people get political information from social radio. Thus, social radio and other online tools significantly shape public opinion and set political agendas.

Empirical Review

One of the most essential features of democracy is the chance for every eligible citizen to choose a candidate to run the affairs of the state. Electoral ideas have developed alongside the democratic ideal, though it has had a turbulent time attracting general acceptability in human society. In its development, the granting of a franchise was first to a small privileged group in the community, usually based on the membership of an estate. It was gradually extended to possessions of property. Age restriction and even sex discrimination also existed, but the latter has been abolished in all democratic societies. However, the age restriction is still in most democracies. Only eighteen citizens can vote in some countries like Nigeria and the USA, while others have fixed theirs at twenty or twenty-one years. The election is believed to serve several purposes in a democracy. Apart from the equal chance to participate in politics, it is used to gauge a society's or government's political health by serving as a stamp of legitimacy for the government of the day. At the same time, election acts as checks on the government since the elected are aware that they may not be re-elected for another term unless they fulfil their electoral promises to satisfy the electorate who gave their mandate. Election is both a process of changing governments and making governments alive to their responsibility. It means bringing the periphery into the political arena [21]. The election is seen as providing a peaceful change of government. It also allows social groups to resolve their conflicting needs

peacefully. Voters are considered to be rational and intelligent in their choice of candidates. However, an opposing view sees elections as merely =symbolic 'in character. According to this position, elections are a secular ritual of democracy [22].

The struggle for a solution to the problem of ethnicity thus remains continuous. Unfortunately, the Marxist-developed and less developed states and the liberal-designed and less developed states have not solved their race problem. None has been able to come up with an empirical and enduring solution to ethnic issues in their countries, which would serve as a universal model for others.

This view opposes the one which holds that voters are intelligent and informed about their choice of candidates and that they vote to fulfil their civic duty. Voters are advised that nothing about the candidates is irrelevant to governance. Our concern in this paper is to examine the electoral behaviour of the Nigerian electorate using ethnicity. In essence, our interest is in mapping out the voting patterns and to see to what extent such practices are directed by race. Ethnic electoral behaviour in Nigeria is as old as elections in Nigeria itself. Various writers have identified this trend in Nigeria's elections or politics.

METHOD

"Research methods" refers to the organized processes, strategies, and equipment researchers employ to gather and process data to provide new insights and understandings about a specific event or subject. The design of this study is a descriptive study to examine necessary information on the effect of poverty on the educational development of citizens.

The study area considered for the study is Lagos State of Nigeria. The Lagos States are appropriate for this study because they are among Nigeria's earliest politically civilized and vibrant states.

The population of this study consists of all residents of Lagos state. Author [23] remarked that a sample is a smaller group to be drawn out of the population. He reported that it must be removed so that every member of the population has a specific non-zero probability of being included in the sample. Simple random sampling will be used to select 400 respondents from Lagos state.

The instrument used for this research work is a self-designed questionnaire tagged effect of poverty on the educational development of the citizens. Therefore, the questionnaire will be designed with a series of questions itemized containing facts about related issues in this research work.

The questionnaire was submitted to the researcher's supervisor to examine and correct the tool and evaluate whether the agency will adequately measure what it should. Necessary modifications were made, and inappropriate items in the agency were modified or scrapped, after which face and content validity of the instrument was ensured.

A test-retest method was adopted to ensure the reliability of the instrument. The questionnaire was administered to twenty National Open University of Nigeria students. The subject's responses will be obtained and correlated using Pearson's Product Moment Correlation Analysis for the split-half method of testing the reliability.

The researcher went to the respondents personally to distribute questionnaires to them. The completed copies of the instrument were retrieved from the subjects after one week.

The data collected will be analyzed using descriptive and inferential statistics. Frequency and percentage counts will be used to answer the research questions raised. Regression will be used to test the hypothesis at a 0.05 significance level.

RESULTS AND DISCUSSION

Demographic distribution of respondents according to gender shows that 32 (64.0%) of the respondents are male, while 18 (36.0%) are female (Table 1).

Table 1 – Descriptive Analysis of respondents' Demographic variables

Demographic variables	Grouping	Frequency	%
Gender	Male	32	64.0
	Female	18	36.0
Years of Experience	20-30 years	14	28.0
	31-40 years	29	58.0
	Above 45 years	7	14.0
Occupation	Civil Servant	19	38.0
	Self Employed	31	62.0

Distribution according to years of experience shows that 14 (28.0%) of the respondents have 20-30 years of experience, and 29 (58.0%) have 31-40 years of experience. In comparison, 7 (14.0%) respondents have over 45 years of experience. The table also shows that 19(38.0%) respondents are civil servants, while 31 (62.0%) are self-employed.

Table 2 – The data computation of the respondents' responses to the questionnaire administered to them

Parameters	Frequency	%
Participants listening to the radio		
Yes, every day	342	85.5
Yes, every week	17	4.5
Yes, once a month	11	4.3
Now and then	23	5.8
Very rarely	5	1.3
No answer	2	0.5
Total	400	100
Participants' choice between local and national radio stations		
Local radios	361	90.3
National radios	31	7.8
No answer	8	2.0
Total	400	100
Do participants listen to campaign messages		
Yes	360	90.0
No	37	9.3
No answer	3	0.8
Total	400	100
Type of campaigns participants mostly listen to		
Party related campaigns	233	58.3
Other campaigns	150	37.5
No answer	17	4.3
Total	400	100
Factors affecting political decision of respondents during voting		
Religious leaders	228	57.0
Tribal/ethnic leaders	57	14.3
Trade leaders/associations	21	5.3
Party leaders	42	10.5
Traditional leaders	10	2.5
Others	38	9.5
No answer	4	1.0
Total	400	100
How opinion leaders influenced electorates' voting decision		
They hardly influence my voting decision	11	2.8
They don't influence me in any way	17	4.3
Through their interpretations and commentaries about political development during sermons and other preaching sessions	255	63.8

Parameters	Frequency	%
In all my voting decision	35	8.8
Well in a positive way of course, because it gives the right direction and counseling to the masses	18	4.5
No answer	64	16.0
Total	400	100
Whether or not opinion leaders influence listening to campaigns		
Yes	262	65.5
No	125	31.3
No answer	13	3.2
Total	400	100

CONCLUSIONS

Radio in Nigeria helps in political participation by motivating citizens to vote and be present for manifesto reading, unbiased in their choice of candidates, etc. It encourages people to attend rallies and be informed about the decision-making process, which is very important in the electoral process. It can also be further concluded that:

- 1) Election turnout can be directed towards proper radio announcements and mobilizations
- 2) Threats of incarceration and proscription also affect the effective mobilization of electorates by radio stations

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3) The success rate achieved through radio adverts by politicians and political parties supersedes other media

4) Mobilizing electorates in general elections would have been impossible without radio.

5) Radio stations organized programs that improved voters' turnout in the 2015 general elections.

Having gathered that political campaign messages exert a powerful influence on society and especially on the voting behaviour of electorates, the researcher recommends that producers of political campaign messages should use their proper judgment in packaging their messages to avoid deception on voters. Such messages should be packaged so that if followed by the masses, they would not harm any individual or society. Furthermore, opinion leaders who are equally found to exert a considerable influence on the opinion followers through interpretation of the political campaign messages should always check the reality or otherwise of the messages produced by parties and candidates to avoid misleading their followers. They should also try to prevent sentimentalism, ethnicity and religious bigotries in their quest to hold on to the followers' decision-making during elections, as that could negatively affect society.

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Impact of Digital Public Relations on Good Governance, Accountability, and National Integration in Nigeria

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Abstract. This abstract explores the impact of digital public relations on good governance, accountability, and national integration. It highlights the growing importance of digital transformation in shaping democratic processes and ensuring effective management. The use of social media and other online platforms has the potential to enhance monitoring and oversight within government institutions and across public services. Additionally, digital PR practices have been found to influence citizens' attitudes and behaviours towards the government. The study emphasises the role of digital tools and strategies to promote transparency, accountability, and inclusivity in governance, ultimately fostering national integration.

Keywords: Digital PR; Accountability; Good Governance; National Integration; Social Media

INTRODUCTION

The rise of the digital generation has revolutionised the field of public relations. Digital Public Relations (DPR) integrates information and communication technologies (ICTs) into modern PR practices. These include computer-compliant, computer-driven, or computer-mediated approaches [1]. DPR involves communication through cyberspace, the Internet, and the World Wide Web (www) and utilising the extranet for effective two-way communication with various online publics.

One aspect of DPR involves preparing a digital press kit (DPK) to extend the reach and expedite the dissemination of corporate information to the media [2]. Embracing e-public relations or electronic PR, primarily on the Internet and the World Wide Web, can facilitate faster and broader distribution of press releases and invitations [3]. The opportunities offered by DPR are vast, making it imperative for companies and organisations in today's competitive and globalised socio-economic landscape.

To remain relevant and effective in this digital age, contemporary PR managers and executives must understand and master the principles and applications of DPR [4]. The first step is ensuring computer literacy, as DPR is inherently computer-based. Public relations practitioners should grasp the distinction between analogue and digital computers. Analogue computers work with analogue signals, while digital systems represent information as a series of bits (0 and 1) to process data faster and more effectively [5]. Embracing digital technology allows the transmission of multiple information signals over a single channel, enhancing speed, reliability, and efficiency.

Public relations as a communication discipline led to the proliferation of digital tools, and rapid communication technologies should ideally amplify their power and effectiveness [6]. However, many technology-based businesses and multinational corporations struggle to leverage these advancements. Simply overlaying digital tools onto outdated PR strategies is akin to fitting a jet engine onto a horse-drawn carriage. To truly capitalise on the potential of digital tools and audi-

ences, a comprehensive redesign of PR structures and approaches is necessary.

Conventional PR tools, such as press releases, conferences, kits, and facility visits, were designed for professional audiences of journalists during a different era. PR programs must address non-journalist audiences in the digital age, including prospects, customers, stakeholders, human rights organisations, and industry analysts [6]. PR information must be structured and formatted for quick consumption to engage these audiences effectively. The conventional press release format often fails to meet the information requirements of a digital audience. Therefore, PR programs must be redesigned to align with digital applications and audience preferences.

Like developing an annual business plan, PR programs should have a clear plan outlining how they support business objectives and promote corporate reputation. Mere product announcements are insufficient; the key lies in leveraging technology to communicate with digital audiences effectively. This roadmap is essential for achieving results in digital PR. In digital PR programs, it is possible to set up discrete channels to reach specific target audiences, allowing for tailored and customised communication [6]. Responsiveness to information needs and quick follow-up are crucial to maintaining interest and fostering an ongoing dialogue with the media and other stakeholders. Timely responses via telephone or email can make a significant impact on establishing positive relationships and capturing attention in the digital realm.

According to [7], the intensely competitive nature of today's business environment necessitates that multinational corporations adopt new and faster methods to enhance their corporate image. Digital public relations, also known as e-PR, is a recent development in corporate management. This concept involves utilising information communication technologies (ICTs) to engage in public relations activities. With technological advancements, public relations can now be conducted using computers, the Internet, the World Wide Web, global systems for mobile telecommunications, and other information technology systems.

The study investigates the role of digital public relations as a novel strategy in corporate management. It explores how companies, organisations, multinational corporations, institutions, and individuals can leverage digital public rela-

tions to improve their image and reputation among their target audiences and stakeholders. The study highlights that digital public relations is characterised by its high level of creativity, strategic approach, speed, and result-oriented nature, all while being cost-effective. One notable advantage is that accessing information about government agencies on the Internet is free, requiring no payment.

RESULTS AND DISCUSSION

Social accountability refers to the ability of citizens and civil society organisations to hold the state and service providers accountable for their actions, obligations, and responsiveness to citizen needs. It involves mechanisms and tools that empower citizens to demand transparency, monitor government performance, expose corruption, and improve public service delivery. Through social accountability, citizens can actively participate in decision-making processes, contribute to policy formulation, and ensure that public resources are used effectively and efficiently. Authors [8] define social accountability as building accountability that relies on civic engagement. In the public sector, social responsibility refers to a wide range of actions and mechanisms that citizens, communities, independent media, and civil society organisations can use to hold public officials and public servants accountable. These include activities such as participatory budgeting, monitoring of public service delivery, public expenditure tracking, investigative journalism, the establishment of public commissions, and citizen advisory boards. These citizen-driven accountability measures complement and reinforce traditional mechanisms such as political checks and balances, accounting and auditing systems, administrative rules, and legal procedures.

Impacts of Digital Public Relations on Government Accountability. The pandemic in Nigeria has changed how businesses, organisations and government agencies run their public relations affairs; modern technology has altered government narratives positively or negatively. According to [9], social media has created an avenue for citizens to interact across borders and participate actively in nation-building. Social media such as Twitter, Facebook, LinkedIn and other social media applications serve as platforms for the citizens to hold the government accountable.

Author [10] posits that "the word accountability was derived from the word accountable, which means adjunct something, responsible for your decisions or actions and expected to explain to them when you are accountable to the voters". Also, author [11] says "Public accountability means that those who are charged with the drafting and or carrying out policies should be obliged to explain to their electorate". The electorate is a composite group including clients, employees and the taxpayers. Nigeria and numerous other African developing countries consistently face various issues linked to underdevelopment, including inadequate infrastructure, high mortality rates, low literacy levels, and poor healthcare. Despite abundant human and natural resources, these challenges persist due to a lack of accountability in African nations, including Nigeria.

Despite the successive Nigerian governments implementing various measures to address the issue of poor accountability, the problem continues to endure without significant improvement. Numerous explanations can be put forward for this complex situation; nevertheless, the primary factor, as indicated by writers, scholars, and commentators who analyse Nigeria's development predicament, is the absence of accountability in governance [6, 12, 13].

New technologies have enabled government ministries, parastatals, agencies, and other departments to establish their digital presence for exchanging information with citizens. Additionally, citizens now have the opportunity to provide feedback and communicate with the government, thereby circumventing the formal structures traditionally involved in engaging with various government stakeholders. Unlike traditional media, which often face government censorship and control, the new press offers advantages in terms of timeliness and cost-effectiveness.

Digital Public Relations and accountability go hand in hand in the modern communication and information-sharing era. As the Internet and social media have become dominant channels for public discourse, organisations and individuals have had to adapt their PR strategies to effectively engage with the public and maintain accountability for their actions. Digital Public relations made the government accountable by putting them on their toes to ensure transparency. With the advent of new media, citizens are now well-informed about the objectives and strategies of the government. This enhanced transparency

facilitated by new media extends to government personnel, agencies, and ministries. Furthermore, individuals and civil organisations have utilised new media platforms to hold these government entities accountable for their actions and demand explanations when necessary – this is referred to as social accountability.

Scholars like [14, 15, 16] elucidated that social accountability is a perspective that focuses on society's expectations of its members. It involves holding power holders accountable for their actions through explanations and justifications and facing consequences if necessary. This approach aims to enhance government transparency and accountability by empowering ordinary citizens to exercise their rights and hold governments accountable for using public funds and exercising authority. Social accountability strategies and tools, such as social media, mass media, pressure groups, and consultative groups, have gained recognition for ensuring administrators and public officers are accountable for their actions while performing their duties.

Therefore, using digital media enables the dissemination information regarding government affairs, allowing citizens to express their dissatisfaction with governmental activities. It is evident that without citizens' demand for information through new media platforms, government personnel, agencies, and ministries would not feel compelled to make relevant information available. Consequently, government accountability is contingent upon citizens actively seeking such transparency. Moreover, it is widely perceived that the government and its agencies often attempt to hinder the influence of new media on accountability.

Transparency in the digital age, it is crucial for government PR practitioners to ensure that any information provided is accurate and timely activities, policies and decisions that are in the interest of the citizens to avoid chaos. For instance, in the "Endsars Protest", the situation could have been arrested swiftly if only digital PR had been employed to calm the aggrieved citizens. Also, Digital Public Relations has made the government accountable by monitoring trends and conversations, addressing issues, responding to queries, identifying public sentiment and managing crises. The following are the strategies the government should employ in the digital space to maintain accountability and transparency:

1. Government PR professionals must actively monitor conversations and mentions related to their organisation. This allows them to promptly address issues, respond to queries, and manage the organisation's online reputation. Monitoring also helps identify emerging trends and public sentiment, enabling proactive communication.

2. When faced with a crisis or negative publicity, responding quickly and effectively by acknowledging the issue, providing transparent updates, and demonstrating a commitment to resolving the situation can help maintain accountability and rebuild trust.

3. Engaging with stakeholders and other government agencies through social media and online platforms. This engagement fosters accountability by showing that the organisation values public input and takes it into account.

4. Constant monitoring and analysis of digital metrics to identify areas for improvement and measurement of communication impacts.

5. Establish good communication and synergy with identified influencers to amplify the government's message and maintain accountability.

6. Data privacy and security should be prioritised by ensuring that social media and online platforms are handled by trained personnel and are secured from cyber-attacks.

Digital PR requires governments to be transparent, actively engage with stakeholders, monitor digital conversations, respond to crises effectively, and manage their online reputation. By embracing these practices, the government can enhance their accountability in the digital age and maintain positive relationships with the citizens.

Public Relations and Digital Literacy. The publication of the Government Public Relations (GPR) policy has presented a problem. The primary objective of GPR is to ensure the effective and efficient dissemination of government priority policies and program information to the public. For instance, in Indonesia, to facilitate the implementation of GPR, the Indonesian Ministry of Communication and Information served as the implementation coordinator, which played a crucial role in equipping government personnel with digital competencies. At the local level, the responsibility lies with the local office of communication and information.

Meanwhile, the enhancement of digital competence is closely linked to functional presuming,

which involves the ability to actively engage in creating, distributing, and producing media content [17]. Previous research has primarily focused on entry-level public relations practitioners' digital and social media competencies [18]. However, public relations effectiveness also relies on teamwork, leadership, organisation, and graphic design skills. Additionally, competencies like strategic thinking, creative thinking, and research skills contribute significantly to the effectiveness of public relations.

Another study [19] developed an instrument to measure new media literacy among students in Singapore. The researchers employed quantitative methods, including descriptive statistics and confirmatory factor analysis, to evaluate the quality of the items using interviews and questionnaires. The results confirmed the validity of the framework of new media literacy, comprising ten scales. This framework provides a statistical measurement to address the challenges of assessing new media literacy. Enhancing media literacy can be particularly valuable in combating the spread of hoaxes, especially within government public relations.

Social media literacy is crucial as a knowledge base for understanding new media. New media possesses distinct characteristics compared to traditional media, prompting communication officers in government public relations to embrace and utilise these new platforms actively. A quantitative survey methodology assessed new media literacy among local government public relations officers. The study revealed that local government public relations officers exhibit moderate new media literacy. Interestingly, the study also indicated that the level of critical media literacy surpassed functional media literacy, highlighting the significant role of local government public relations in promoting social media literacy to combat misinformation and hoaxes [20].

Another study emphasised the importance of traditional skills for public relations officers, acknowledging that new technical skills will become increasingly vital. Furthermore, it highlighted social media as the most critical new skill for fresh graduate students in public relations [21]. In a separate research endeavour, the focus was on the government's public relations efforts to mitigate the spread of hoaxes [22]. New media literacy was identified as an essential component and was supported by implementing a new media framework to enhance digital literacy among

government public relations officers [19]. This study employed a quantitative quasi-experimental method to achieve its objectives.

According to the t-test conducted on pre-test and post-test data, training programs have positively impacted social media literacy among government public relations officers. In Indonesia, there is a misconception among some officers that digital public relations activities are synonymous with using social media platforms [23]. Furthermore, certain public relations officers lack standardised operational procedures for digital public relations activities, often relying on the preferences of their superiors [24]. However, they are responsible for serving as communication facilitators between the government and the community, emphasising two-way communication and acting as negotiators [25]. PR officers should effectively utilise online platforms with ethical considerations to promote organisational objectives and empower the public.

New media literacy encompasses traditional, mass, and digital media [26], extending beyond the scope of conventional or mass media literacy. It includes reading and writing as foundational skills. New media literacy is vital for enhancing professionals' effective use of information technology. As professionals in government public relations, officers should possess the skills to utilise technology effectively.

New media literacy serves both a consuming and presuming dimension and a functional and critical dimension. It can be divided into consuming practical skills (competence in accessing media and understanding messages), finishing critical skills (competence in understanding and interpreting social, political, and economic contexts), functional prosuming skills (competence in creating media content), and critical prosuming skills (contextual interpretation of media content during participation in new media). The new literacy framework developed by [17] and expanded upon by [19] encompasses ten comprehensive components: consuming skill, understanding, analysis, synthesis, evaluation, presuming talent, distribution, production, participation, and creation.

Authors [27] studied the transition of global media from traditional public relations to digital public relations. The focus of this research was to examine the utilisation of social media as a digital public relations tool by Nigeria's national and sub-national governments. The study addressed

the existing knowledge gap regarding the frequency of social media usage as a digital public relations tool among Nigerian governments and the levels of e-participation exhibited by the online audience as of February 28, 2022.

A qualitative approach with a descriptive research design was employed as the methodology for this study. The findings revealed that all national and sub-national governments in Nigeria maintain a minimum of two and a maximum of six social media accounts. However, the frequency of social media usage varied, from monthly to yearly, across the 38 governments. Additionally, the study found that the levels of e-participation by the online audience were generally low.

Based on the results, several recommendations were proposed. Firstly, it is recommended that all governments adopt, at a minimum, the top four social media platforms (Facebook, Twitter, YouTube, and Instagram) as digital public relations tools. Furthermore, the study suggests that governments in Nigeria should fully exploit the potential of Facebook, given its advantages in facilitating e-participation through features such as comments, shares, likes, and views. Lastly, the study recommends that official government accounts be used weekly rather than relying solely on governors' personal social media accounts to enhance e-participation levels in Nigeria.

Digital Public Relations and Stakeholders' Engagement. To enhance public information governance in the millennial era, the ideal strategy for Government Public Relations would involve promoting stakeholder engagement strategy models, storytelling strategies, single narratives, conventional media optimisation strategies, and digital media and social media optimisation strategies. These approaches aim to establish the appropriate positioning for government public relations [28].

Strategic communication is an effective solution for achieving the goals of public communication programs. Well-organised organisations strive to generate publicity through various means, such as press releases, campaigns, social media engagement, special events, visual materials, and other symbolic messages aimed at their target audience [29].

Increased engagement with these platforms is directly associated with more positive attitudes towards their use of social media. Research suggests that social media usage influences aware-

ness about government policies, levels of political involvement, and online trust. This relationship is partially mediated by the frequency of social media use, specifically for users of Twitter, YouTube, and Instagram [30].

Public relations, as one of the management functions, involves evaluating public attitudes, identifying policies that align with public interests for individuals or organisations, and planning appropriate strategies to effectively communicate, engage and implement programs to improve general understanding and acceptance [31].

Like offline public relations, digital public relations aims to enhance the reputation and understanding of an organisation through online media channels [32]. Government public relations professionals must possess communication and journalistic skills to conduct digital public relations activities [33].

In the fourth industrial revolution (4.0) era, various online platforms were available for digital public relations, including websites, YouTube, social media platforms (such as Facebook, Twitter, Instagram), and podcasts. These platforms offer interactive content that incorporates audio and visual elements. Public, private, and non-profit organisations utilise online platforms to implement their public relations strategies. Effective implementation of digital public relations relies on interaction and message dissemination. Cutlip suggests the concept of the 7Cs: credibility, context, content, clarity, continuity-consistency, channel, and the audience's capability (Cutlip, 2013). The Holmes Report (2015) outlines the following critical public relations skills: 40% social media community management, 39% multimedia content creation, 39% insight and planning, 39% creativity, 31% measurement and analytics, and 23% digital building and production [34].

McQuail introduces several categories of new media. Firstly, new media encompasses interpersonal communication media, which includes private content that can be quickly deleted, such as mobile phones and email. Secondly, new media refers to interactive play media, encompassing computers, video games, and virtual devices [35]. The primary innovation of interactive play media lies in its interactivity and the satisfaction derived from the process and usage. Thirdly, new media comprises information search media, encompassing libraries and data sources offering vast amounts of up-to-date and accessible information.

Fourthly, new media involves collective participatory media, which consists of using the Internet for sharing and exchanging information, opinions, and experiences through computers, such as social networking websites. Lastly, new media substitutes traditional broadcasting media, enabling the reception or download of previously broadcasted content [35].

Furthermore, this study examined the use of disruptive social media as a digital public relations tool by national and sub-national governments in Nigeria as of February 28, 2022. Specific research questions were formulated to guide the investigation to achieve this objective. The study's findings provide insights into these research questions.

The first research question inquired about the extent of social media utilisation by national and sub-national governments in Nigeria as a digital public relations tool. The findings indicate that all governments employ a minimum of two and a maximum of six social media accounts, including Facebook, Twitter, YouTube, Instagram, Flickr, Slideshare, and LinkedIn. These results align with [36] findings, establishing that Facebook, Twitter, and YouTube are popular government social media operations platforms. Srivastava concluded that social media use by governments offers a quick, cost-effective, and interactive platform for engaging with citizens despite initial scepticism among governments worldwide.

Notably, only Cross River, Ebonyi, and Kastina States lack an official Facebook account, and Kastina, Kano, and Ondo States do not possess an official Twitter account. Additionally, most states do not have a YouTube account, except for State House (FG), Akwa Ibom, Plateau, Ebonyi, Ekiti, Kano, Kebbi, Niger, Ondo, Sokoto, Taraba, and Yobe States. Furthermore, only the FCT, Anambra, Edo, Kano, Nasarawa, Niger, Ondo, and Taraba States do not maintain an official Instagram account. Some social media accounts, however, have remained inactive for four to six years, as they were associated with past administrations, such as the Facebook and Instagram funds of the Bayelsa State Government. Nevertheless, national and sub-national governments in Nigeria have utilised these social media platforms at various times.

Additionally, it was observed that some government officials used their personal social media accounts to publish activities, neglecting the official social media accounts of the state govern-

ment. Moreover, most active social media accounts were not integrated into the state government websites. Multiple dummy Facebook accounts were also noted, both legitimate from government media aides and illegitimate from fraudsters.

The second research question examined the level of social media usage by national and sub-national governments in Nigeria as a digital public relations tool. Utilising a rating scale from 0-24% (very low), 25-50% (low), 51-65% (high), and 66-100% (very high), the analysis reveals that Facebook demonstrates a weekly usage of 66% (very high) as a digital public relations tool, surpassing all other social media platforms in terms of frequency of use, spanning from weeks to years. On the other hand, Twitter exhibits a weekly usage of 48% (low), indicating below-average utilisation by the 35 governments employing it. The data further suggests that Twitter is more frequently used monthly and yearly than weekly. Instagram registers a weekly usage of 45% (low), also falling below average. Like Twitter, the monthly and annual use of Instagram exceeds the weekly usage. As a digital public relations tool, YouTube demonstrates a weekly usage rate of 25% (deficient), and again, its monthly and yearly usage surpasses the weekly usage. Based on the percentages obtained, the level of social media use as a digital public relations tool by national and sub-national governments in Nigeria is relatively low. These findings concur with existing literature and data analysis, suggesting a trend of government social media accounts being overshadowed by those of political personalities. Author [37] noted that the objectives and outcomes of institutional social media use are not as apparent as they are for individual politicians. Political leaders, such as heads of state and government, tend to be more popular on social media than the institutions they represent, creating uncertainty among government institutions regarding how to effectively leverage social media and its implications for strategic objectives and daily operations.

The third research question assessed the level of e-participation facilitated by social media as a digital public relations tool among national and sub-national governments in Nigeria. The study analysed metrics such as likes, shares, comments, retweets, and views for each social media platform. Posts garnering over 100 likes, shares, comments, retweets, and ideas were categorised as having high e-participation. The findings indi-

cate that all four social media platforms under investigation (Facebook, Twitter, YouTube, and Instagram) exhibit higher percentages of low participation compared to high e-participation. Consequently, the level of e-participation enabled by social media as a digital public relations tool among national and sub-national governments in Nigeria is relatively low. This finding aligns with similar trends in countries sharing comparable media ecologies with Nigeria. A study on the Federal Government of Nigeria's digital relations revealed that mobile Internet users do not perceive the digital media relations of the federal government as vital since they acquire government information from traditional news media. The study recommends promoting the federal government's digital media relations channels, including websites and social media networks.

In conclusion, this study sheds light on using disruptive social media as a digital public relations tool by national and sub-national governments in Nigeria. It reveals the prevalence of social media adoption among these governments, with varying degrees of usage across different platforms. However, social media utilisation and e-participation levels remain relatively low, indicating room for improvement in effectively leveraging these tools. The study underscores the need for government institutions to navigate the challenges associated with social media use, particularly regarding strategic objectives and day-to-day operations, while emphasising the promotion of digital media relations channels to enhance engagement with citizens.

The study [38] focused on the District Government Public Relations in Sleman and their efforts to establish public trust amidst the COVID-19 pandemic. The presence of misinformation, particularly regarding COVID-19 and government policies, has contributed to a decline in public trust, leading to a crisis of confidence. Therefore, the primary responsibility of Government Public Relations is to disseminate accurate information, foster public trust, and effectively manage situations.

This research adopts a descriptive approach with a qualitative methodology. Data collection involves conducting in-depth interviews with the Public Relations officials of the District Government in Sleman and conducting a literature review. The study utilises the concepts of Public Relations [39] and the Dimensions of Public Trust (Rawlins) to analyse the efforts made by

Public Relations in building public trust during the COVID-19 pandemic.

The findings indicated that the Public Relations team of the District Government in Sleman has been successful in building public trust and combating hoaxes by promptly delivering information through online media channels, ensuring precise and consistent messaging, and coordinating efforts to establish trust. However, the researcher believes that the efforts made by the Public Relations team in Sleman to build public trust are not fully optimised. One area of improvement is the absence of a precise measurement system employed by the District Government's Public Relations in Sleman to evaluate their performance and gauge the effectiveness of their trust-building initiatives within the community, particularly during the COVID-19 pandemic.

Impacts of Digital Public Relations on National Integration and Unity in Nigeria. National integration refers to promoting unity, cohesion, and solidarity among the diverse groups and communities within a nation. It fosters a sense of belonging, shared values, and a common identity among individuals from different backgrounds, ethnicities, religions, and cultures. National integration aims to create a harmonious and inclusive society where all citizens can live together peacefully and contribute to the nation's development. It often involves promoting equality, social justice, respect for diversity, and a strong sense of patriotism and national pride.

Though National Unity and National Integration are different, both aim to achieve togetherness at the apex. The US Department of National Unity defines national unity as "a situation in which all citizens from various ethnic groups, religions and states live in peace as a united nationality giving total commitment to national identity, based upon the Constitution. National unity refers to cohesion and harmony among the various groups and individuals within a nation. It emphasises the shared sense of identity, purpose, and values that unite people as a collective entity.

On the other hand, national integration focuses on bringing together diverse groups and individuals within a nation, ensuring their inclusion, participation, and equal opportunities. It emphasises accepting and recognising different cultural, religious, ethnic, and linguistic identities while promoting social cohesion and equality. National integration aims to create a sense of oneness and

solidarity among various communities, bridging divides and reducing social disparities.

While national unity and integration share the goal of fostering a cohesive society, their approaches and emphasis differ. National unity emphasises the shared sense of identity and purpose, focusing on the collective consciousness and loyalty to the nation. National integration, on the other hand, emphasises the inclusion and recognition of diverse identities, promoting social equity and harmony. Both concepts are essential for a stable and harmonious society, as they contribute to nation-building, social cohesion, and progress. However, achieving national unity and integration requires efforts to address social, economic, and cultural disparities, promote equal opportunities, and foster a sense of belonging and shared values among all members of society.

CONCLUSIONS

Though [40] argued that measures such as the Federal Character Principle, National Youth Service Corps, and Federal Unity Schools have had some positive effects, they have not fully achieved the goal of promoting national integration in Nigeria. Digital public relations can promote national unity by leveraging online platforms to disseminate messages that foster a sense of shared identity and values among diverse groups within a nation. Here are a few ways digital PR can contribute to promoting national unity:

1. Engaging with diverse audiences: Digital PR allows organisations to connect with various audiences, including ethnic, cultural, and social groups. By tailoring messages and content to resonate with these diverse audiences, digital PR can help create a sense of inclusivity and representation.
2. Promoting dialogue and understanding: Digital PR can facilitate conversations and discussions among citizens from different backgrounds through social media and online platforms. This can lead to increased awareness, empathy, and collaboration, which is essential for promoting national unity.
3. Highlighting common values and goals: Digital PR campaigns can emphasise shared values, traditions, and aspirations that unite citizens across various regions and demographics. Digital PR can

reinforce national identity by showcasing stories and narratives emphasising commonalities.

4. Celebrating diversity: Digital PR can also play a role in celebrating the diversity within a nation. Digital PR can foster a sense of pride and appreciation for the nation's multicultural fabric by highlighting the contributions and achievements of different communities, cultures and regions.

5. Addressing social issues: Digital PR can raise awareness about social problems and promote

inclusive policies that address disparities and social justice. Digital PR can contribute to a more equitable and united society by amplifying voices and advocating for positive change.

6. Digital PR has been a powerful tool for promoting national unity by leveraging online platforms to engage, communicate, and connect with diverse audiences while emphasising shared values, celebrating diversity, and addressing social issues.

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Pipeline Damage Assessment Based on Corrosion Segmentation Using JetRacer Kit

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Abstract. This paper describes the development of a criticality assessment of corroded metallic pipelines using the JetRacer Kit. Considering the difficulty of accessing pipelines from the inside, the developed program launched on a robotic platform allows for diagnostics. Replacing damaged sections of pipelines after scanning can increase the longevity of operation. The video stream is segmented using the method of separating colour characteristics of corrosion at different stages of its progression and tested on the system at several investigated corrosion areas inside the pipelines. The process of segmentation of corrosion into three levels, high, medium, and low, is described. Each damage level is visualized using the corresponding colours: red, orange, and yellow. In addition, the corrosion concentration for each level was grouped into selected rectangles. Damage assessment is based on the segmented number of found image pixels. The work results can be helpful for services engaged in diagnosing pipelines.

Keywords: corrosion detection; corrosion segmentation; data processing; Nvidia Jetson Nano

INTRODUCTION

Metal pipelines provide underground and surface communications for water supply and more. With constant operation and the action of external factors, defects in metals begin to appear. A peculiarity of metal is the process of corrosion fatigue. The internal parts of the pipelines are often more vulnerable than the external ones, given the constant operation and interaction with moisture. Pipe sizes are different, and visual assessment can be an alternative for assessing the criticality of the pipeline condition. One of the disadvantages of visual assessment is the lack of natural lighting and demanding access to pipeline bottlenecks. When metal elements are affected by corrosion, one of the ways to extend their durability is to replace the damaged part.

Corrosion detection processes in metal pipes can be automated using robotic operating systems (ROS).

Corrosion detection using machine learning methods was implemented in [1]. Thus, the technique automates the approach for recognizing damage to metal. However, assessment using

criticality classification is not taken into account. Corrosion detection with more application details and comparisons is implemented in [2]. The specificity of this study is in the study of external damage and not the internal parts of the pipes. The paper [3] shows the possibility of classifying corrosion in infrastructure objects by degree. In general, much attention is paid to the external features of corrosion detection, but the indicated chances are not for the internal scanning of pipelines. There are several studies based on similar principles of damage assessment. The determination of damaged pixels is based on the principle of the percentage of damage in work [4] and the use of robotic tools [5], and a general list of various achievements in this area of research is listed [6].

This paper aims to implement a solution for the segmentation of corrosion in the internal part of the pipeline based on the data collected from the JetRacer Kit.

The main tasks in the work are the following:

- the grouping of metal corrosion damage into three categories according to colour saturation;

– analysis of frames from the video stream with the available amount of corrosion in graphical dependence.

MATERIALS AND METHODS

The JetRacer Kit is an assembled model based on the Nvidia Jetson Nano microcomputer with a connected camera, motors for movement and more. Taking into account the possibility of action from the teleoperation of the remote control, the investigation of damaged sections of pipelines can take place in hard-to-reach places. The Linux operating system is installed on the Jetson Nano with additional Python libraries to provide movement work with images and calculations [7].

Each image consists of pixels that have the property of a combination of RGB (red, green, blue). The program's algorithm for matching pixel colours to colour range templates for critical, medium, and minor corrosion damage to a pipeline section. The OpenCV library is used to work with image pixels [8].

In addition, damage is grouped according to the criticality of corrosion fatigue in the metal. For this, a search is carried out from each group for the minimum and maximum values on the x and y axes. The beginning of the rectangle that encloses the damaged area is taken in the minimum x and y coordinates, and the length and width are the difference between the maximum and minimum values along the axes.

RESULTS AND DISCUSSION

Implementation. Robotic tools make it possible to automate the process of detecting defects in various infrastructure facilities. In the same way, it can be applied to detect corrosion [9]. As shown in the visualization in Figure 1, the JetRacer Kit moves in the pipe and records and stores the number of detected critical damages in the investigated area.

The camera captures pixels with specific template colours of corrosion of different criticality in the movement process. The main steps of the software algorithm are shown in Figure 2.

The conditions for falling into a specific range for other states will involve a deviation from 5 to 25 units in the colour scale.



Figure 1 – Visualization of the pipeline scanning process for corrosion

This is because the lighting may vary slightly in some places and the presence of dust and other elements.

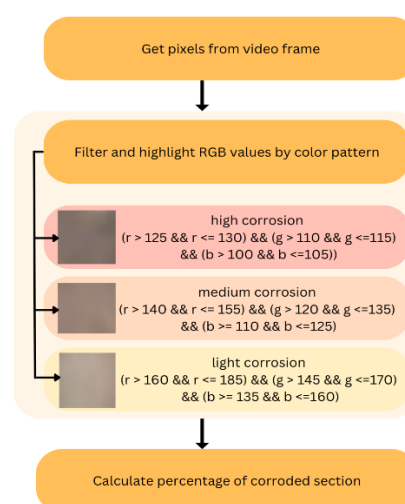


Figure 2 – Visualization of the main steps of the algorithm for recognizing and classifying corrosion colours according to the state of criticality

The final step of calculating the percentage of damage in each frame means dividing the value of a group of pixels of a specific criticality by the total number of pixels and multiplying by 100 to derive the percentage.

Calculation of corroded section. To assess the criticality of the effect of corrosion on parts of a metal pipeline, it is worth considering the recognition of visual damage. Figure 3a shows a frame from a video shot using the JetRacer Kit in an old pipe covered with corrosion from the inside. Figure 3b shows the overlay of colour filters on a frame with corrosion damage. In the case of sand and dust in the pipeline, places with corrosion in those parts may not be accurately detected. However, it is possible to visually identify the damaged interests with an indication of criticality quite precisely by standard colours.

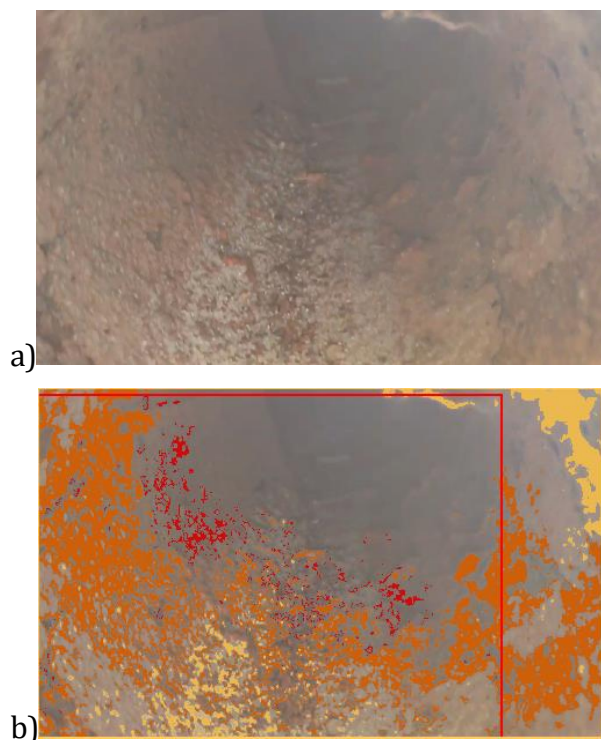


Figure 3 – Video frame with detected corrosion in the pipeline: a) input, b) processed

In the case of searching only the most critical places, it is possible to filter the most damaged areas, as shown in Figure 4a.

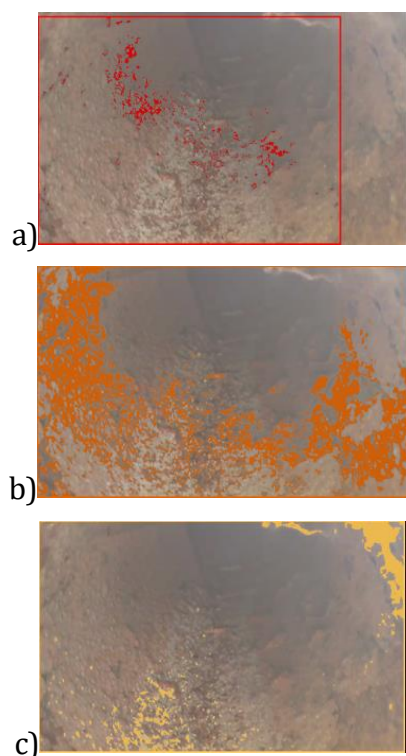


Figure 4 – Processed video frame separated by criticality corrosion: a) high, b) medium, c) low

Suppose it is necessary to separate only other degrees of corrosion criticality. In that case, it can be done as shown in Figure 4b and Figure 4c for medium condition and light degree of damage, respectively. The amount of corrosion in percentage by level was found to be high – 1.535%, medium – 21.357%, and low – 4.01%.

In the same way, we tried to recognize corrosion in a more detailed fragment, as shown in Figure 5a. In a pipe, especially an old one, the robot has many obstacles to move. Therefore, the camera changes the shooting angle when the robot hits obstacles. As shown in Figure 5b, the detected corrosion of a high level of 0.007%, an average level of 0.96% and a low level of 0.27% was calculated.

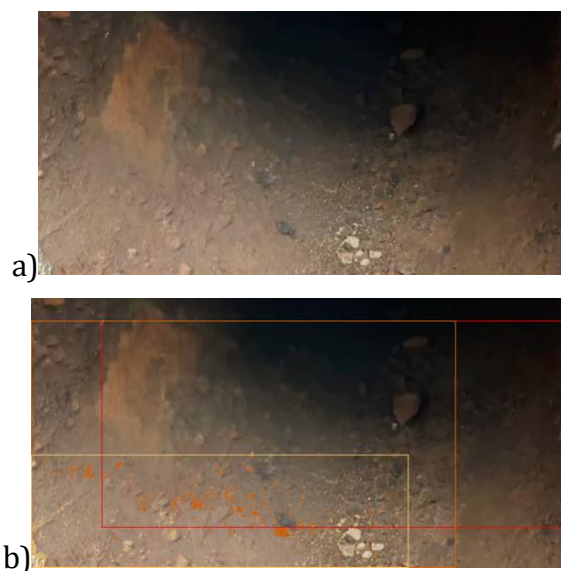


Figure 5 – The process of detected corrosion in a more detailed frame: a) input, b) processed image

Also, this same method was tested in a pipe with garbage, cobwebs and leaves, as shown in Figure 6a. The classification according to the corrosion colour in Figure 6b was carried out, and the results were quite good, considering that the extra elements did not fall under the detection conditions. Also, some details in the image are difficult to evaluate regarding criticality without using computer vision methods.

The result is the calculated percentage of damage in the frame: high corrosion covers 0.005%, medium – 0.19%, and low – 4.0%. The total damage result can be obtained by adding these percentage numbers and tracking its change during the robot's path.

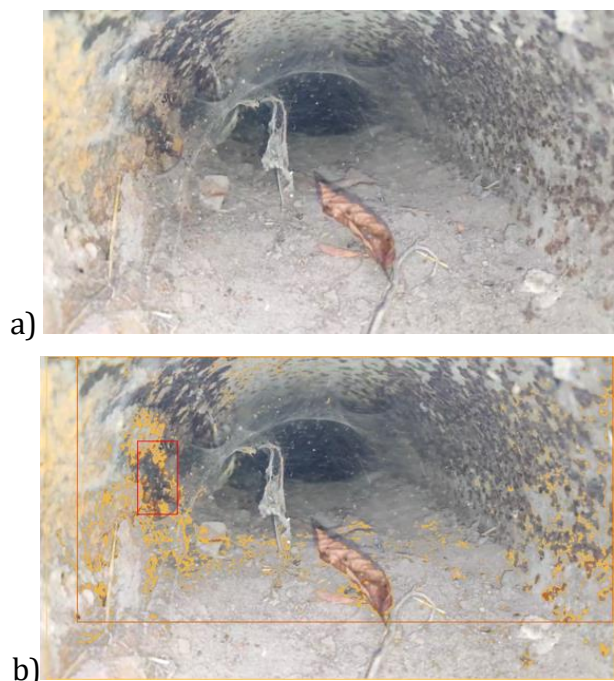


Figure 6 – An example of classification of corrosion with foreign objects in the pipe: a) input, b) processed image

Lighting affects detection quality as image detail improves. As shown in Figure 7a and Figure 7b, these images are taken with improved lighting built into the robot. In moving with a change in the position of the camera's shooting angle with the JetRacer Kit, several vulnerable places are classified according to the criticality of corrosion.

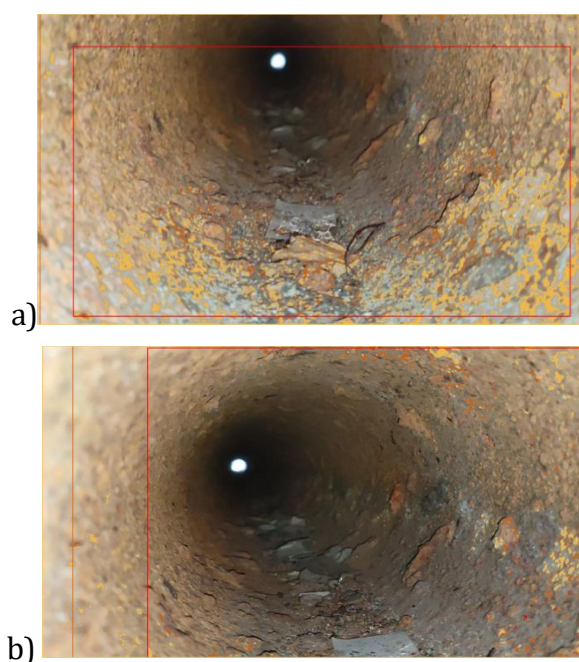


Figure 7 – Examples of frames from the video in the process of moving the robot through a corrosion pipe and detecting corrosion with improved lighting: a) one frame; b) second frame

The dependence of several frames from the beginning of the pipe is shown in Figure 8.

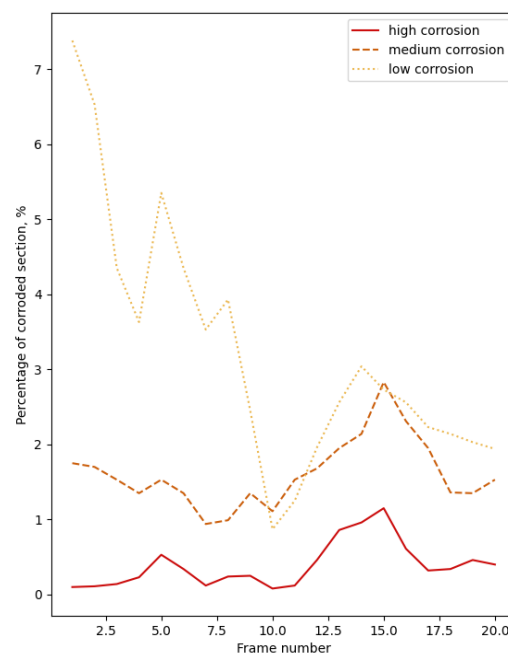


Figure 8 – Considering the percentage ratio between a small area with frame iterations changes the criticality of corrosion

On such a small video, you can assess the condition of the pipe section. The percentage of high-level corrosion damage is around 0.4%, medium – about 2%, and low – 3.5%. The studied statistics show the places that need urgent repair or the current section of the pipeline. If certain critical percentage limits are inserted for each type of corrosion, then the pipe's condition can be determined. Clarification of the location of the lesion can occur with the start of a video recording in which the frame can be tracked.

A histogram with RGB values can also determine the highest colour frequency, as shown in Figure 9. The prominent histogram peaks show the number of pixels found with that colour. This method can be used to clarify the conditions for determining corrosion from a video frame.

The corrosion detection and classification process between repair criticality levels in such an automated way can be improved by specifying conditions from the colour histogram. In addition, this process can identify and assess the situation, which can help monitor entire water supply systems [10–13], leading to the house and other hard-to-reach places for humans. In addition, it is worth considering risks and assessments when implementing such systems [14, 15].

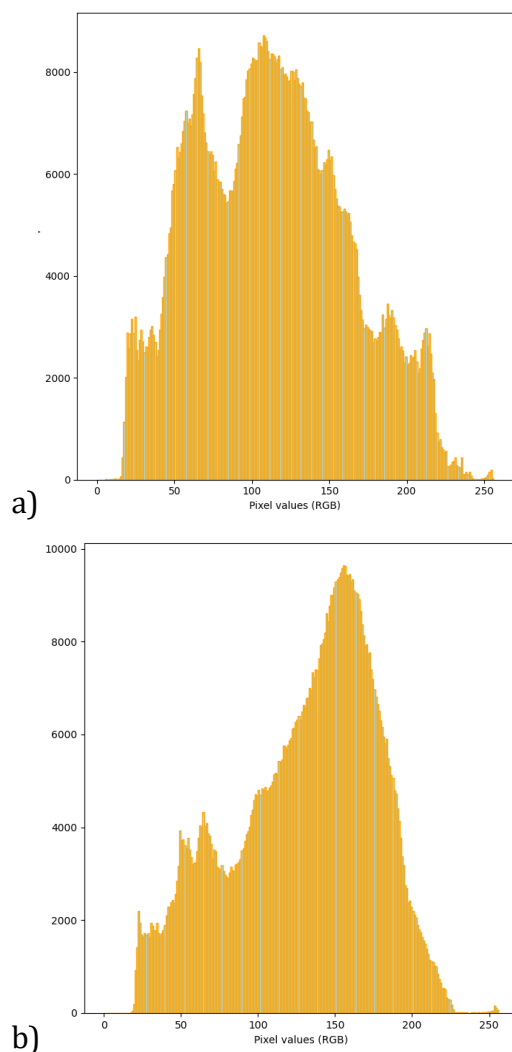


Figure 9 – Histogram of colour pixel frequency:
a) frame from Figure 7a, b) first frame from Figure 7b

In researching the potential possibilities of assessing the condition of pipes from the inside, filtering methods and conversion into numerical values of pipe corrosion damage were analyzed.

The limitation of such a JetRacer Kit robot device in size is 20 centimetres in all directions. That is, monitoring will not be possible in thinner pipes.

The quality and presence of lighting in such dark places are essential as they affect the assessment of the criticality of the condition. Even considering the obstacles of cobwebs, leaves or sand in the pipe, this corrosion segmentation quite accurately visually detects damage.

One of the critical points for the quality of the evaluation is the robot's speed, which affects the clarity of the frames. The movement in the pipes should be slow, with stops to fix structures.

The criticality of the state of determination can be adjusted according to the conditions because, often, lighting at work and dust in the pipe can make it challenging to detect corrosion and evaluate it accordingly.

CONCLUSIONS

This paper describes the process of working with the JetRacer Kit camera to assess the criticality of pipes using the method of corrosion segmentation. The division into corrosion criticality is implemented based on colour conditions and RGB values. Given the difficulty of accessing the inner part of the pipe, the method of visual assessment from the robot camera was used. In addition, the process of corrosion detection and damage assessment is described. The detection method is tested on corroded pipes with varying degrees of damage. Also, some frames contained extraneous elements, which did not affect damage detection.

Criticality scores are converted into numerical values using the number of pixels found under the specified conditions by colour. In this way, it is possible to monitor the state of the pipe in case of corrosion in metal pipes.

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Development and Assessment of AppStay: A Web-Based Room, Dorm and Apartment Reservation System

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Abstract. This study aimed to develop and assess a web-based room, dorm, and apartment reservation system known as AppStay. A developmental research design was utilized, involving 50 respondents, including IT experts, students, and owners of various accommodations in Sumacab Este, Cabanatuan City, Philippines. By employing the modified waterfall model, the researchers successfully developed the system. The assessment of AppStay's technical aspects revealed a high level of acceptability, as indicated by the positive evaluations conducted by IT experts.

Additionally, the study found the system to possess highly favourable qualities in terms of usability. These results demonstrate the suitability of AppStay for use within the local context of the study. However, the researchers provided several recommendations to enhance the system's usability and performance. In conclusion, the development and assessment of AppStay yielded promising results, highlighting its potential as an effective web-based reservation system. Continued efforts to improve its usability and performance will contribute to its long-term success and enhance the overall user experience.

Keywords: Accommodation; AppStay; Developmental Research; Information Technology; Web-based Reservation

INTRODUCTION

Amid the pandemic, the field of information technology plays a significant role in the lives of many individuals, especially in the context of room reservation systems. The importance of information technology in room reservations during the pandemic cannot be overstated. Information systems have been developed to optimize facility reservation processes in higher education institutions, aiming to minimize delays and errors [1]. These contemporary, adaptable, dynamic, efficient, compatible, and reusable information systems incorporating databases have become indispensable for managing room reservations and integrating them with various methods [2]. Furthermore, technology allows for the automation of room reservation procedures, reducing the need for manual intervention and enhancing efficiency [3].

People are increasingly integrating information systems into their daily lives due to their ability to streamline processes and enhance efficiency [4]. Various types of accommodation facilities, including hotels, transient lodgings, and dormitories, have recognized online booking systems' value in engaging existing and potential customers [5]. Compared to traditional manual reservations, online booking is a faster and more effective approach [6].

Before the pandemic, accommodation providers relied on manual booking systems, presenting several drawbacks such as data repetition, time wastage, and data isolation [7]. The outbreak of COVID-19 further exacerbated the situation, leading to widespread disruption in the global accommodation industry. Lockdowns and travel restrictions forced many establishments to close or operate at reduced capacity [8] temporarily.

Amidst the ongoing pandemic, there is a growing demand for temporary housing, particularly among students attending institutions outside major cities. Finding suitable boarding houses for these students has been challenging [9]. Researchers have proposed developing and assessing an online reservation system or a web-based temporary shelter reservation system as a viable solution. This innovative approach aims to simplify the reservation process and provide precise geographical information about available shelters.

The "App-Stay" reservation system offers a web-based dorm registration system designed explicitly for Sumacab Este, Cabanatuan City. The platform provides comprehensive information, including detailed descriptions, photographs, geographical maps, monthly costs, and room capacities. Students can conveniently make reservations at their preferred time and location, receiving immediate confirmation from their chosen accommodation.

This study aimed to develop and assess a web-based application for room, dorm, and apartment reservations called AppStay.

Specifically, the study sought to describe the following:

1. How may the development of AppStay be described in terms of the selected stages of the modified waterfall model, which include Requirements Analysis, System Design, Implementation (including development), and Testing?
2. How may the IT experts assess the system based on the ISO 25010 software standards, which include Functional Suitability, Reliability, Usability, Performance Efficiency, Compatibility, Security, Maintainability, and Portability?
3. How may the end users assess the system based on the selected ISO 25010 standards, which include Functional Suitability, Reliability, and Usability?

METHODS

In this study, a descriptive research design was used. The study employed a developmental research design focused on creating and assessing programs. The research took place in Sumacab Este, Cabanatuan City, Nueva Ecija. Several information technology-based studies have been conducted in the past which used developmental

research design and were able to develop several systems. Thus, the use of such a design has been observed and proven effective to be used [10-16].

The respondents were purposefully selected and comprised 10 IT experts with a background in system development, along with 40 end-users who were students temporarily residing in boarding houses and apartments in Sumacab Este, Cabanatuan City. Additionally, selected house owners and landlords were involved.

Questionnaires were utilized in the study, consisting of two sets: one for IT experts and another for end-users, both available in English. The questionnaires consisted of closed-ended questions to evaluate the system's quality and technical aspects based on ISO 25010 quality standards.

These questionnaires were adapted to assess the system's usability and technical performance. The evaluation sought feedback from end-users and IT specialists, enabling an assessment of the system's effectiveness and adherence to quality standards.

RESULTS AND DISCUSSION

The Development of AppStay Following the Selected Stages of the Modified Waterfall Model.

Requirements analysis plays a significant role in the modified waterfall model, given its ability to detect and address the weaker aspects of requirements engineering [17]. Inadequate or erroneous requirements engineering can result in costly errors during software development or even project failure [18]. As the foundation of any software project in the modified waterfall model, requirements that contain ambiguity or are poorly defined can lead to significant errors and, ultimately, project failure [19]. Therefore, conducting a thorough requirements analysis is crucial in ensuring the software development process's accuracy, completeness, and success [20].

In this stage, the researchers aimed to create a robust plan for constructing the developed system. They identified the development process, determined the system's scope, and understood its functionality. Through observations and interviews, the researchers devised a plan to ensure that the developed system aligned with the processes encountered by the End Users and IT Experts. A Gantt chart was also created to guide

the researchers in implementing the selected modified waterfall activities for constructing the system. Figure 1 presents the Gantt chart of activities.

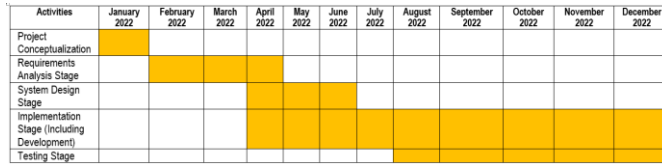


Figure 1 – Gantt Chart

System Design Stage. During the system design stage, the researchers focused on gathering, understanding, and documenting the requirements for developing the AppStay. The main objective was to collect the criteria to guide the system's development.

The researchers created various process diagrams to comprehensively understand the critical activities and processes involved in the system. These diagrams visually represent the flow of information between the system and its environment, including the capture, manipulation, storage, and distribution of data.

Figure 2 presents a data flow diagram (DFD) that illustrates the communication flow between external entities, processes, and data stored within the system.



Figure 2 – Context Diagram

A use-case scenario diagram in the exact figure also depicts the activities and their relationships with each external entity in the system. It provides a high-level overview of the system's functionality, as shown in Figure 3.

Lastly, Figure 4 presents the entity-relationship diagram (ERD), which graphically depicts the relationships between entities in the system's database. The entities include Register, Register Room Details, and Room Details, while the relationships illustrate the connections and associations between these entities.



Figure 3 – Use-Case Diagram

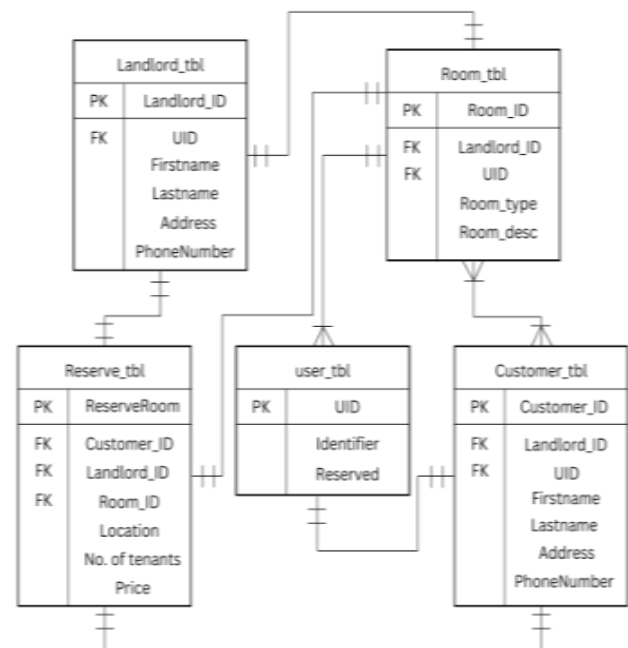


Figure 4 – Entity-Relationship Diagram

In the *implementation stage*, the researchers developed the system based on the outcomes of the preceding steps in the modified waterfall model. They utilized various Integrated Development Environments (IDEs), as shown in Figures 5 and 6, such as Sublime text editor and XAMPP, to create the front-end and back-end of the system.

These tools were essential for the efficient development of the system. Meanwhile, Figure 7 shows the sample developed user interfaces of the AppStay.

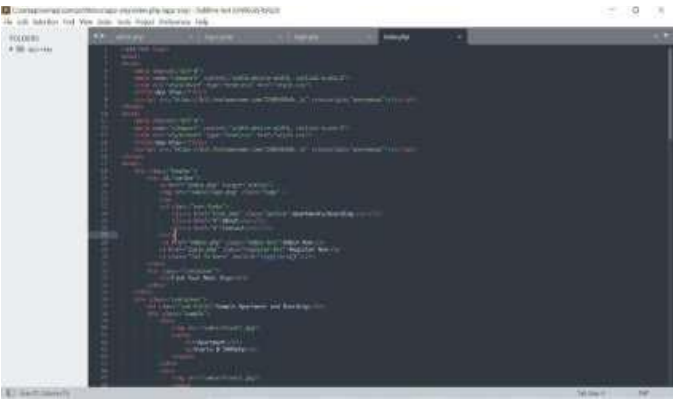


Figure 5 – Sublime Text Editor

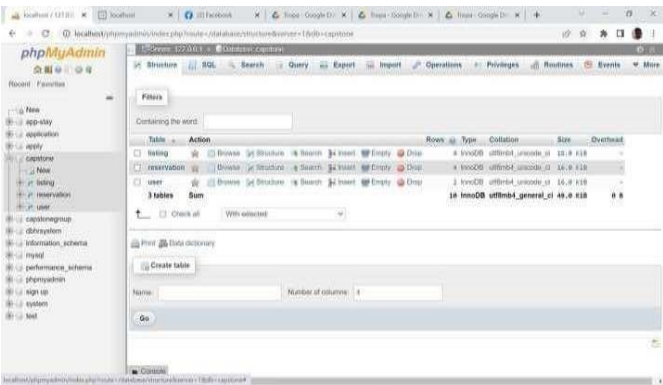


Figure 6 – XAMPP Interface

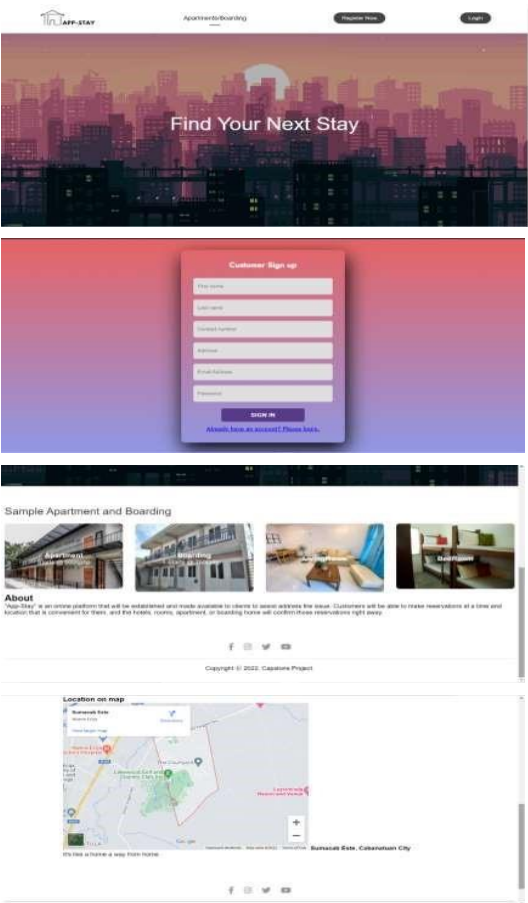


Figure 7 – Sample User Interface of AppStay

Assessment of the Technical Aspects of AppStay by IT Experts. Table 1 shows the result of the evaluation made by the IT Experts on the technical features of AppStay. It covered the different software standards of the ISO 25010.

Table 1 – Assessment Result on the Technical Aspects of AppStay

Criteria	Mean	Verbal Interpretation
Functional Suitability	3.40	Highly Functional
Reliability	3.50	Highly Reliable
Usability	3.55	Highly Usable
Performance Efficiency	3.50	Highly Efficient
Compatibility	3.50	Highly Compatible
Security	3.57	Highly Secured
Maintainability	3.40	Highly Maintainable
Portability	3.37	Highly Portable
Overall Grand Mean	3.29	
Overall Verbal Interpretation	Highly Acceptable Technical Features	

Table 1 shows the results of the technical evaluation of AppStay. The table comprises many evaluation criteria, their mean scores, and the verbal interpretation of each criterion's outcome.

When interpreted, the results demonstrate that AppStay works well in various technical areas. The mean scores for functional suitability, reliability, usability, performance efficiency, compatibility, security, maintainability, and portability ranged from 3.37 to 3.57. AppStay is highly practical, dependable, usable, efficient, compatible, secure, maintainable, and portable, as seen by its rating. Using the overall grand mean of 3.29, it is possible to infer that AppStay's technological characteristics are highly satisfactory. These results indicate that the system was built and developed with functionality, dependability, usability, performance, interoperability, security, maintainability, and portability in mind. When using the AppStay reservation system, users can expect a high-quality and satisfying experience.

This evaluation provides valuable information on the technical elements of AppStay. The system's high mean scores across multiple areas imply it is robust, user-friendly, efficient, and secure. The overall good rating indicates that AppStay is well-designed and capable of meeting users' expectations and demands. These results validate the development efforts and demonstrate

AppStay's ability to deliver a dependable and effective reservation system for users.

Assessment of the Quality of Use Aspect of AppStay.

Table 2 displays the results of the end-users evaluations of the AppStay's usability. It covered the ISO 25010 software standards that were chosen.

Table 2 – Assessment Result on the Quality of Use Aspect of AppStay

Criteria	Mean	Verbal Interpretation
Functional Suitability	3.26	Highly Functional
Reliability	3.26	Highly Reliable
Usability	3.40	Highly Usable
Overall Grand Mean	3.31	
Overall Verbal Interpretation	Highly Acceptable Quality of Use Features	

Table 2 shows the evaluation findings for the AppStay system's quality of use. The table comprises various criteria, their mean scores, and a verbal interpretation of each criterion.

According to the first criterion, Functional Suitability, the system is highly functional, with a mean score of 3.26. This indicates that the AppStay system effectively achieves its intended functions and meets the applicable standards established for it. The second criterion, reliability, also received a score of 3.26, indicating that the system is highly reliable. This means that the AppStay system constantly performs its operations effectively and without faults, offering a dependable user experience. Usability obtained a mean score of 3.40, suggesting the design is quite useable. This indicates that the AppStay system is user-friendly, intuitive, and simple, improving the user's experience and happiness. Given the overall grand mean of 3.31, it is safe to say that the AppStay system's usability characteristics are of good quality. This means the system successfully provides a high-quality user experience by balancing functional appropriateness, dependability, and usability to fulfil user expectations and requirements.

These findings indicate that the AppStay system was designed to offer a highly functional, dependable, and user-friendly experience in mind. Users can expect a system that effectively achieves its intended functions, is error-free, and is simple to use. This evaluation gives valuable insights into the AppStay system's good quality of use features, showing that it is well-suited for

its intended customers and is likely to be well-received.

CONCLUSIONS

The stages of requirements analysis, system design, and implementation, including coding and testing, were all included in the development of AppStay, which was done using a modified waterfall methodology. This systematic approach ensured a thorough and organized development process. Furthermore, AppStay's evaluation found significant benefits for landlords and students in Sumacab Este, Cabanatuan City. The system met the technical and usability standards, ensuring its dependability, functionality, and usability. AppStay proved especially useful for students looking for low-cost, high-quality accommodations. Given the ongoing pandemic, the system's smartphone accessibility allowed customers to navigate and discover suitable rooms, giving a convenient and efficient answer to their housing needs. AppStay helped connect users with practical and economical living arrangements during these difficult times.

Based on the conclusions drawn from the information provided, the following recommendations can be made:

1. **Continuous Improvement.** Although the AppStay system has proven effective and beneficial, it is essential to implement an ongoing improvement process. Regular updates and enhancements should be made to enhance further the system's functionality, usability, and overall user experience. This can be achieved by gathering user feedback and incorporating suggestions to address potential issues or limitations.
2. **Expansion and Marketing.** Expanding its coverage to include other areas beyond Sumacab Este and Cabanatuan City is recommended. This would allow a broader range of landlords and students to benefit from the system's features. Additionally, a targeted marketing strategy should be developed to increase awareness and promote the advantages of using AppStay to landlords and potential tenants.
3. **Collaborations and Partnerships.** Establishing collaborations and partnerships with educational institutions, local businesses, and relevant stakeholders can further enhance the success and growth of AppStay. These partnerships can help promote the system, acquire more users, and es-

establish a strong network of accommodations available through the platform. Additionally, partnerships with technology providers or ser-

vice providers can ensure the smooth functioning and maintenance of the system.

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Electrochemical Readout in Lab-On-Chip Platforms: Overview of State of the Art and Future Perspectives

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Abstract. Lab-on-chip (LoC) platforms are disruptive technologies in analytical chemistry and bioengineering and are known to enable miniaturised and sensitive analysis of complex biological and chemical samples. Electrochemical detection became one of the most explored among several readout methods, hence its versatility, robustness, straightforward execution, sensitivity, and portability. Therefore, this brief review critically examines the principles, applications, and prospects of electrochemical detection in LoC technologies, highlighting its significance in advancing various fields, including clinical diagnostics, environmental monitoring, and drug discovery.

Keywords: microfluidic; in vitro; diagnostic; biomarker; analytical; medical device.

INTRODUCTION

Lab-on-chip (LoC) platforms are disruptive analytical technologies that can perform complex laboratory processes on a miniature scale [1, 2]. These platforms allow the integration of multiple functions onto a single microfluidic chip and enable rapid, sensitive, and cost-effective analysis of biological and chemical samples, making it a promising solution for a wide range of applications [3, 4]. Central to LoC technologies is a reliable detection system, which frequently uses electrochemical signal transduction and has been known to provide several benefits in contrast to other analytical methods [5, 6].

Considering electrochemical detection of analytes in LoC platforms, two main approaches are frequently described in the literature: faradaic and non-faradaic methods [7]. The former is based on redox reactions, where the analyte of interest undergoes oxidation or reduction at an electrode surface. This process generates an electrical current that is directly proportional to the concentration of the analyte [8-10]. The second method relies on thorough surface modification to allow biorecognition motifs to be anchored to a sensing substrate. The analyte's concentration is indirectly estimated by evaluating changes in the electric behaviour of the interface [11-13]. Regardless of the method, most electrodes used

in electrochemical detection are typically made of conductive materials, such as carbon allotropes, platinum, or gold [14-17].

Another constituent of LoC platforms is the microfluidic system [18]. This technology offers numerous advantages over traditional wet-chemistry laboratory setups, such as reduced sample and reagent volumes, faster analysis times, portability, and cost-effectiveness [19-21]. The microfluidic system is often based on materials like glass, silicon, or polymers, containing an intricate network of microchannels and wells. These microfluidic channels serve as pathways for precise manipulation and control of fluids, such as sample introduction, mixing, reaction, and separation [22].

Integrating multiple functions on a single chip enables LoC platforms to perform complex biochemical and chemical analyses, including DNA analysis, protein assays, cell sorting, and chemical reactions [23, 24]. By automating and miniaturising these processes, LoC devices streamline workflows, reduce human error, and consume minimal amounts of reagents and samples, making them environmentally friendly [25].

Due to the benefits over standard laboratory techniques, LoC platforms are expected to be integrated into diverse fields, such as medical diagnostics, environmental monitoring, food safety,

and drug development [26-28]. To all accounts, their portability and potential for point-of-care (PoC) and point-of-need (PoN) testing make them very competitive technologies for resource-limited settings and remote areas, where access to traditional laboratory facilities may be challenging [29, 30].

As research and development in microfabrication techniques continue, LoC technologies are expected to advance further, enabling the creation of sophisticated and susceptible analytical devices. These advancements will likely lead to transformative changes in various scientific and commercial sectors, bringing efficient and accessible analytical capabilities to a broader range of users [31, 32].

Therefore, consider electrochemical detection's role as a critical enabler in LoC technologies by providing real-time and label-free analysis. This review aims to delve into the underlying principles, mechanisms, and applications of electrochemical detection in the context of LoC technologies, uncovering its pivotal role in advancing multiple disciplines, including clinical diagnostics, environmental monitoring, and drug discovery [33, 34].

RESULTS AND DISCUSSION

Principles of LoC Technologies

Microfluidics and Miniaturization. Microfluidics comprises the precise manipulation of small volumes of fluids, typically in the microliter or nanoliter range, within microchannels. This miniaturisation of laboratory processes onto a chip offers numerous advantages, including reduced reagent consumption, faster analysis times, and the ability to perform high-throughput experiments [35, 36]. The unique characteristics of microfluidics enable enhanced control over sample manipulation, making it possible to integrate multiple functions seamlessly onto a single microfluidic chip.

Microfluidic platforms exhibited substantial growth in recent years, driven by advancements in materials science, microfabrication techniques, and automation. The design and fabrication of microfluidic devices have become more accessible, facilitating interdisciplinary collaboration and the translation of research into practical applications [37, 38]. These advancements have paved the way for developing LoC devices capa-

ble of handling diverse sample types, such as blood, saliva, and environmental samples, with remarkable precision and efficiency [39].

Integration of Analytical Processes. A key strength of LoC technologies is the seamless integration of multiple analytical processes onto a single chip. Sample preparation, reaction, and detection were traditionally conducted sequentially, often in separate laboratory settings. Integrating these processes onto a microfluidic chip streamlines the analytical workflow, reducing the time required for analysis and minimising the risk of contamination and errors arising from manual interventions [40].

Integrating analytical processes within LoC devices enhances analytical efficiency and allows novel assay formats by streamlining sampling and assaying operations. For example, LoC devices can combine sample preparation steps, such as cell lysis, nucleic acid extraction, and protein purification, with downstream analyses, enabling rapid and automated workflows. Such integration holds promise for many applications, from PoC diagnostics to environmental monitoring and pharmaceutical research [41].

Detection Methods in LoC Devices. While various detection methods are employed in LoC devices, electrochemical detection has emerged as a versatile technique for real-time monitoring of analytes. Electrochemical sensors and biosensors are pivotal in translating biochemical or chemical interactions into electrical signals, making them well-suited for integration into microfluidic platforms [42]. Electrochemical detection techniques, such as amperometry, potentiometry, voltammetry, and impedance spectroscopy, offer several advantages, including label-free detection, high sensitivity, and real-time monitoring capabilities [43, 44].

The versatility of electrochemical detection is reflected in its ability to detect a wide range of analytes, from small molecules to complex biomolecules like proteins and nucleic acids. Electrochemical sensors can be engineered to selectively detect specific analytes by functionalising electrode surfaces with recognition elements, such as enzymes, antibodies, or DNA aptamers [45, 46]. Moreover, electrode materials and surface modifications can be tailored to optimise sensitivity and selectivity, allowing for precise and reliable detection in various complex sample matrices.

Electrochemical Detection in LoC Technologies

Basics of Electrochemistry. Electrochemical detection in LoC technologies relies on the fundamental principles of electrochemistry, which involve the transfer of electrons between an electrode and an analyte in solution [47, 48]. The redox reactions occurring at the electrode-solution interface lead to measurable changes in current, potential, or impedance, providing valuable information about the analytes present in the sample.

The main components of an electrochemical sensor based on a three-electrode architecture are the working electrode, reference electrode, and counter electrode [49, 50]. When an electrical potential is applied between the working and reference electrodes, analytes in the sample undergo redox reactions at the working electrode surface, leading to measurable electrical signals. The magnitude of the electrical response is proportional to the concentration of the analyte, allowing for quantitative analysis [51]. On the other hand, the surface of the working electrode can be modified with biorecognition elements, such as capture antibodies. Upon the selective binding of these capture antibodies with their complementary targets, charge transfer processes may be hindered, thereby increasing the resistance to assigning transfer proportionally to the amount of the analyte bound to the capture antibodies [52].

Electrochemical detection offers several distinct advantages in LoC technologies. The label-free nature of electrochemical sensors eliminates the need for complex and costly labelling procedures, reducing the overall assay time and simplifying the experimental setup. Furthermore, electrochemical detection provides real-time monitoring capabilities, enabling dynamic analysis of biological and chemical processes, which is particularly valuable in studying time-sensitive reactions or events [53, 54].

Electrochemical Sensors and Biosensors. Electrochemical sensors and biosensors are essential for LoC devices to detect and quantify analytes in complex samples. These sensors operate, as aforementioned, by converting chemical signals from analytes into measurable electrical signals, providing rapid and sensitive detection capabilities [54, 55]. Electrochemical sensors can be classified into several types, such as immunosensors, enzymatic and non-enzymatic sensors, based on their underlying detection mechanisms [44, 46].

Electrochemical immunosensors base their detection on the use of biorecognition molecules to allow selective binding of analytes to the sensing surface. This binding leads to hindrances to charge transfer, being the change in impedance and electric current output proportional to the concentration of the analyte [52, 56]. The biorecognition molecules that can be used to craft these sensors may range from standard capture antibodies to aptamers and artificial biorecognition motifs such as molecularly imprinted polymers [57, 58]

Enzymatic biosensors utilise enzymes as recognition elements to detect target analytes selectively. The enzymatic reaction generates an electrical signal, allowing for precise detection of analytes. Enzymatic biosensors have found extensive applications in clinical diagnostics, environmental monitoring, and food safety [59,60]. For instance, glucose biosensors are widely used for monitoring blood glucose levels in diabetic patients, while biosensors targeting environmental pollutants are employed in water quality monitoring. On the other hand, numerous reports of enzymatic sensing platforms for food and drug quality control highlight the versatility of this technology [58, 61, 62].

On the other hand, non-enzymatic sensors directly interact with analytes through their inherent reactivity, eliminating the need for specific recognition elements. Non-enzymatic sensors often employ materials with unique electrochemical properties, such as metal nanoparticles or carbon nanotubes, to facilitate the detection of particular analytes. Non-enzymatic sensors have shown promise in detecting various analytes, including heavy metals, environmental toxins, pharmaceutical compounds and food contaminants [58,63].

Types of Electrochemical Detection Techniques Used in LoC

Amperometry. Amperometry is an electrochemical detection technique that measures the current generated during a redox reaction at a constant applied potential. The magnitude of the current is proportional to the concentration of the analyte, allowing for quantitative analysis. Amperometric sensors are known for their excellent sensitivity and are widely used in clinical diagnostics, environmental monitoring, and chemical analysis [41, 42].

In clinical diagnostics, amperometric sensors are commonly employed for glucose monitoring in diabetes management [46]. These sensors offer rapid and accurate measurements of glucose levels in blood or interstitial fluid, enabling patients to manage their condition effectively. Additionally, amperometric sensors find applications in environmental monitoring to detect pollutants, such as heavy metals and toxic chemicals, in water and soil samples [18, 20].

Potentiometry. Potentiometry is an electrochemical technique that measures the potential difference between the working and reference electrodes at zero current. This label-free technique provides real-time analysis of analytes and is commonly used in ion-selective electrodes (ISEs) for monitoring specific ions in solution. In LoC devices, potentiometry finds applications in pH sensing, ion monitoring, and enzymatic activity assays [52, 64].

Due to their high selectivity and sensitivity, ISEs have become valuable tools in environmental monitoring and clinical diagnostics. For instance, LoC devices with pH-sensitive ISEs can monitor changes in pH levels in environmental samples or bodily fluids, offering insights into the health of aquatic ecosystems or acid-base imbalances in patients. Moreover, enzymatic activity assays employing potentiometry can aid in diagnosing various diseases and monitoring enzymatic reactions in real-time [54].

Voltammetry. Voltammetry encompasses a group of electrochemical techniques used to study the redox behaviour of analytes. The most common types of voltammetry include cyclic voltammetry, differential pulse voltammetry, and square wave voltammetry, each with specific applications in electrochemical sensing. Voltammetry involves applying a potential sweep to the working electrode and measuring the resulting current response, providing information about the electrochemical behaviour of analytes at different potentials [52, 54, 65].

Voltammetric methods offer the advantage of qualitative and quantitative analysis, making them versatile tools for detecting various analytes. LoC devices employing voltammetry find applications in neurotransmitter detection, heavy metal analysis, and drug screening. For example, voltammetric sensors can monitor neurotransmitter release in real-time, providing critical insights into brain activity and neurological disorders. Additionally, voltammetry is employed

in drug screening to assess the potency and stability of pharmaceutical compounds, facilitating the drug discovery process [46, 48, 66].

Impedance Spectroscopy. Impedance spectroscopy is an electrochemical technique that measures the impedance response of an electrode to detect analytes and assess biomolecular interactions. Impedance-based sensors are susceptible to changes in the electrical properties of the sensor surface, making them suitable for label-free detection of biomolecules and monitoring cell behaviour in cell-based assays [67, 68].

In LoC devices, impedance spectroscopy finds applications in several fields, such as cell studies, protein-protein interactions, and label-free biosensing. For instance, impedance-based biosensors can monitor the proliferation and viability of cells in real time, providing valuable data for drug development and toxicity testing. Furthermore, impedance spectroscopy has enabled label-free and sensitive detection of biomolecules, such as DNA, proteins, and antibodies, thereby offering promising opportunities for diagnostic applications and medical research [67].

Advantages of Electrochemical Detection in LoC

Sensitivity and Selectivity. Electrochemical detection provides ultrasensitive detection of analytes, even in complex matrices, while maintaining excellent selectivity. The inherent amplification of signals during redox reactions and the ability to functionalise electrode surfaces with specific recognition elements enhance the detection sensitivity, making it possible to detect analytes at low concentrations [69]. This level of sensitivity is precious in clinical diagnostics, environmental monitoring, and pharmaceutical research, where accurate measurements of trace analytes are crucial for making informed decisions [68].

Real-time Monitoring. The real-time nature of electrochemical detection is a significant advantage, enabling continuous monitoring and dynamic analysis of biological and chemical processes. This real-time capability is precious in studying time-dependent reactions, transient events, and cellular responses. LoC devices equipped with electrochemical biosensors allow researchers to gain insights into dynamic processes, providing critical data for disease diagnosis, drug development, and environmental monitoring [70-72].

Miniaturization and Portability. One of the most significant advantages of LoC technologies with electrochemical detection is their miniaturisation and portability. These devices drastically reduce the size and weight of analytical systems by integrating complex laboratory functions onto a single microfluidic chip. The portability of LoC devices offers several benefits, including on-site analysis in remote or resource-limited settings, PoC testing at the patient's bedside, and the ability to conduct field studies with minimal infrastructure requirements [20, 25]. The reduced size also contributes to cost savings and efficient use of resources, making LoC technologies with electrochemical detection accessible to a broader range of users.

Reduced Sample and Reagent Consumption. LoC devices with electrochemical detection significantly reduce sample and reagent requirements, contributing to cost savings and environmental sustainability. Integrating multiple analytical steps onto a single chip reduces the required reagent volume, making it feasible to perform assays with small sample volumes, especially in clinical diagnostics and pharmaceutical research. The reduced reagent consumption also lowers the generation of hazardous waste, promoting eco-friendly and sustainable analytical practices [69].

Integration with Sample Preparation Steps. Electrochemical detection integrates with sample preparation steps, enabling a streamlined and automated workflow. The integration of sample preparation, such as cell lysis, nucleic acid extraction, and protein purification, simplifies the assay process, reduces manual handling steps, and minimises the risk of contamination, enhancing the reproducibility of results. Combining sample preparation and electrochemical detection is advantageous in PoC testing and high-throughput screening applications, where rapid and reliable results are essential [37].

Applications of LoC Technologies with Electrochemical Detection

Clinical Diagnostics. LoC devices with electrochemical detection significantly advance clinical diagnostics, particularly in PoC testing, biomarker detection, and infectious disease diagnosis. The ability to detect disease-specific biomarkers in bodily fluids with high sensitivity and specificity holds promise for early disease

detection, enabling timely interventions and personalised treatment strategies [73].

PoC Testing (POCT). Electrochemical detection's rapid and sensitive nature allows on-site testing, enabling timely and accurate clinical decision-making. In remote or resource-limited settings, LoC devices with electrochemical sensors can offer diagnostics capabilities that were once only available in well-equipped laboratories. POCT is particularly valuable in underserved regions and during emergencies, as it allows immediate medical assessment and intervention [73, 74].

Detection of Biomarkers. Electrochemical biosensors have shown promise in detecting disease-specific biomarkers, facilitating early diagnosis and personalised treatment strategies. Biomarker detection using electrochemical sensors has applications in cancer diagnostics, cardiovascular disease monitoring, and infectious disease detection. The ability to detect multiple biomarkers simultaneously using multiplexed assays enhances the diagnostic power and accuracy of LoC technologies in clinical settings.

Infectious Disease Diagnosis. Electrochemical detection offers a robust platform for rapidly identifying infectious pathogens, critical in managing outbreaks and preventing transmission. LoC devices with electrochemical biosensors have been developed to detect viruses, bacteria, and parasites, enabling timely diagnosis and efficient disease surveillance. The rapid and accurate identification of infectious agents is essential for implementing effective control measures and containing outbreaks [76, 77].

Environmental Monitoring. LoC technologies with electrochemical detection provide cost-effective and real-time solutions for monitoring environmental pollutants, water quality, air pollution, and soil contaminants. These miniaturised devices with electrochemical sensors can be deployed remotely, continuously monitoring critical environmental parameters and providing valuable ecological assessment and management data. LoC devices' portability and real-time capability make them ideal tools for monitoring environmental changes and studying ecological dynamics in various ecosystems [78, 79].

Drug Discovery and Pharmaceutical Research. Electrochemical detection in LoC devices accelerates drug discovery efforts, enabling high-throughput screening, pharmacokinetic studies, and pharmaceutical quality control. Electrochem-

ical assays can assess drug potency, toxicity, and metabolic stability, aiding in identifying potential drug candidates and optimising drug formulations. The ability to rapidly evaluate drug candidates' activity and safety profiles using LoC devices with electrochemical detection expedites drug development. It reduces costs associated with traditional drug screening methods [80, 81].

Challenges and Limitations

Sensitivity and Signal-to-Noise Ratio. Despite the outstanding sensitivity of electrochemical detection, challenges related to the signal-to-noise ratio persist. Background noise from electronic circuitry and interference from other species in the sample matrix can impact the accuracy and reliability of measurements. Researchers are actively exploring novel signal processing algorithms and electrode modifications to enhance the signal-to-noise ratio and improve the detection limits of LoC devices with electrochemical detection [82, 83].

Biofouling and Surface Modifications. Minimising biofouling and enhancing electrode stability are critical to improving the longevity and reproducibility of sensors. In complex biological samples, such as blood or tissue extracts, biomolecules can adsorb onto the electrode surface, reducing sensor performance. Researchers are investigating surface coatings and bio-passivation strategies to mitigate biofouling effects, prolonging the sensor lifespan and maintaining accurate measurements over extended periods [84, 85].

Standardisation and Reproducibility. Adopting LoC devices with electrochemical detection in real-world applications requires the establishment of standardised protocols and quality control measures. Variability in sensor fabrication, surface functionalisation, and experimental conditions can affect assay results, necessitating rigorous quality assurance and robust validation procedures. Developing standardised guidelines will ensure the reproducibility and comparability of results across different laboratories and applications [86].

Integration and Scalability. Integrating multiple functions onto a microfluidic chip requires interdisciplinary collaboration and advanced engineering expertise. The complexity of integrating diverse components, such as microfluidic channels, electrodes, and electronic circuits, necessitates seamless coordination between experts

from different fields to ensure reliable and efficient LoC devices. Additionally, scaling up production for commercial applications poses challenges related to cost-effectiveness and mass production [30].

Cost and Accessibility. The cost of manufacturing LoC devices with electrochemical detection remains significant, particularly for widespread adoption in resource-limited settings. While advancements in microfabrication and mass production techniques have contributed to cost reduction, efforts are ongoing to make LoC technologies more affordable and accessible to a broader user base. Initiatives aimed at resource-sharing, open-source designs, and collaborative research can further promote the accessibility of LoC technologies with electrochemical detection [78, 87].

Future Perspectives

Nanomaterials and Enhanced Sensing Performance. Integrating nanomaterials into electrochemical sensors holds great promise for improving sensitivity, selectivity, and overall performance. Nanomaterials, such as carbon nanotubes, graphene, and metal nanoparticles, offer unique properties that enhance the sensors' surface area, electrical conductivity, and biorecognition capabilities. Researchers are exploring novel nanomaterial-based sensors to achieve higher sensitivity and enable the detection of analytes at even lower concentrations, expanding the potential applications of LoC devices with electrochemical detection [87, 88].

Development of Multiplexed Assays. Advancements in multiplexed assays will enable the simultaneous detection of multiple analytes, significantly enhancing the scope of LoC technologies. Multiplexed assays allow for measuring multiple biomarkers or chemical species in a single sample, providing comprehensive information for disease diagnosis, drug screening, and environmental monitoring. Integrating multiplexed assays with LoC devices will streamline analytical workflows and reduce the overall assay time, improving efficiency and throughput [89, 90].

LoC for Personalized Medicine. The integration of electrochemical detection with personalised medicine holds transformative potential for healthcare. Personalised medicine optimises patient care by considering individual genetic, environmental, and lifestyle factors. LoC devices with

electrochemical sensors can contribute to personalised medicine by enabling rapid and precise diagnostics, predicting drug responses, and monitoring disease progression. The ability to perform fast and on-demand diagnostics using LoC technologies will facilitate tailored treatment strategies, optimising patient outcomes and reducing healthcare costs [91, 92].

Autonomous and Self-Powered Devices. Developing self-powered LoC devices will enhance portability and simplify operation, expanding their applications in resource-limited settings. Integrating energy harvesting technologies, such as solar cells or micro-scale fuel cells, can provide the necessary power for LoC devices, eliminating the need for external power sources and making them more self-reliant. Autonomous LoC devices offer exciting opportunities for PoC testing in remote regions and during emergencies, as they do not depend on external power infrastructure [93,94].

Advancements in Data Analysis and Interpretation. Innovations in data analysis and interpretation algorithms will facilitate real-time analysis and decision-making in LoC technologies. As the complexity and volume of data generated by LoC devices increase, advanced data analysis tools, including machine learning and artificial intelligence [95], will be crucial in extracting meaningful insights and automating decision-making processes. Researchers are developing algorithms to efficiently process and interpret data from LoC devices, enabling rapid and accurate decision-making in various applications [96, 97].

CONCLUSIONS

The integration of electrochemical detection in LoC technologies has emerged as a powerful analytical tool, revolutionising various fields, including healthcare, environmental monitoring, and pharmaceutical research. Despite challenges, the continuous efforts in research and development are steadily overcoming limitations, paving the way for a future where LoC technologies with electrochemical detection will drive advancements in analytical science and contribute to improving global health and environmental sustainability.

The versatility, sensitivity, and portability of electrochemical detection make it an indispensable component in the advancement of LoC technologies, offering exciting prospects for transforming diagnostics, personalised medicine, and environmental monitoring in the future. As interdisciplinary collaborations continue to flourish, and with sustained investment in research and infrastructure, the full potential of LoC technologies with electrochemical detection can be realised, opening new frontiers in analytical science and benefiting society. The ongoing advancements in nanomaterials, multiplexed assays, personalised medicine, and autonomous devices will shape the future of LoC technologies, empowering researchers, clinicians, and environmental scientists with innovative tools for tackling pressing global challenges.

Conflict of Interest

The authors declare that there is no conflict of interest.

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The Issue of Hybridization of Discursive Practices

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Abstract. The discourse research, which was reduced to analysing such linguistic problems as the text and the conditions of its generation, gradually gave way to analysing discourse as a social phenomenon. In the 90s of the last century, the status of discourse analysis was determined as an interdisciplinary science. In all fundamental research, the central theme is the concept of discourse as a derivative of social practice and its connection with the social structure.

Keywords: discourse; genre; social practice; text.

INTRODUCTION

Critical Discourse analysis focuses on the following points. Discourse is considered primarily a social practice and interpreted as a process of social activity in the form of written and oral texts and other semiotic signs, for example, visual images [3, p. 267]. Subsequent studies of the nature of discourse analysis describe discourse as a social practice – a standardised social activity [2, p 70]. Discourse exists in a form determined by social activity and is expressed using the appropriate genre.

Naturally, various types of discourse reflect multiple aspects of human activity. N. Fairclough defines genre as "a way of using language adapted to a social condition and in connection with specific social activity" [3, p. 283]. He calls the type of text a genre configuration and declares that the class is more specific than the genre. According to Fairclough, the kind of text is actualised in a specific social activity and an equally specific social situation [3, p. 284]. This position can be regarded as a continuation of the theory of speech genres proposed by M. Bakhtin [1, p. 30].

The functioning of a language in various textual genres and types depends on several factors. Among them, it is necessary first of all to distinguish sociolinguistic and individual

characteristics. Sociolinguistic factors have their requirements for genres and types. The personal psychological nature of the addressee determines the genre-typological choice of the text.

METHODS

The research method is discourse analysis and descriptive. Different linguistic facts are selected for research materials.

RESULTS AND DISCUSSION

Let's clarify the question of types and genres. Narrative, descriptive, informative and expository genres are traditionally distinguished. At the same time, the variety of the kinds of social activity determines the variety of types of speech activity. There are types of artistic, media, political, and religious genres, such as a novel, newspaper, advertising, political debates, and sermons. Equally important is whether this genre is an oral statement of a politician or lawyer or a written text intended for social networks. It functions in real historical time or remains "forever" on the rights of a classic work of fiction.

As the principles of cooperation and collaboration, P. Grice identifies four maxims: qualities,

quantities, harmony and style, as characteristic communication features in real historical space and time. P. Grice means compliance with the requirements of cooperation (at least at an elementary level) between the addressee and the addressee, necessary to ensure communication efficiency. Participants must be fluent in one language and know the general topic. Otherwise, the success of communication will be questioned [5, p. 55].

Any discourse consists of several discursive genres. M. Talbot considers media lessons a hybrid of genres [13, p. 29]. After all, media discourse includes many genre varieties – TV, newspaper, Internet publishing, advertising, and "inter-genre" – interviews, letters to the editor, Internet portals, and speeches in social networks. This is the textual reality of the functioning of modern mass media.

Hybridity, as an inter-genre phenomenon, is characteristic of many types of discourse. Recently, hybrid varieties of lessons have become the focus of attention of scientists. For example, A. Fetzer writes about the phenomenon of political media discourse [4, p. 18]. Indeed, there are many similarities between political and media discourses (the flow of speech in real-time, the apparent pragmatic attitude of speakers, etc.). Unlike these types of discourse, artistic and academic discourses do not unfold in real-time, and the texts of these discourses are usually written.

Thematic discourse analysis distinguishes two types of discourse: individual and institutional. Particular speech includes such types as everyday dialogues and personal correspondence. The institutional lesson covers broader areas. These are media discourses, political, legal, academic or scientific, and religious discourse and their corresponding genres: newspaper articles, radio messages, speeches at court sessions, political debates, scientific articles, lectures, etc.

The oral or written form of discourse, as well as its connection with a specific time, is realised in various types and genres and has a solid reverse effect on them. The text's style, genre and semi-genre determine the discourse's oral or written form and its temporal characteristics. Thus, the text of artistic discourse and all literary genres exist in written form. Artistic discourse does not unfold in real time (poetic impromptu addresses to the audience are instead an exception). For example, many genres of media, judicial and political discourse (television interviews, court ses-

sions, social media communication, parliamentary debates, etc.) are real-time oral texts. A spoken or written text in a small or sizeable historical time, oral or written form, directly affects the process of its generation in a pre-intentional or spontaneous form. Unlike a written text not directly related to real-time, an oral utterance is not planned and is characterised by a specific spontaneity.

In addition to connecting discourse with time, another essential aspect of its functioning is its presence in the natural or virtual world. An illustrative example of a discursive text reflecting the real world is an informational text, and a convincing example of a reflection of the virtual world is a text of fiction. Informational texts are the property of media and academic genres. A characteristic feature of media texts (headlines, advertisements, news, etc.) is their informativeness [14, p. 105; 7, p. 150]. Informativeness is also characteristic of the genres of academic texts: textbooks, curricula and manuals. Informational texts include thematised ideas and facts referring to extralinguistic reality.

The virtual world can be reflected not only in fiction but also in other types of texts. Even though many newspaper genres recreate momentary reality, some are realised in an imaginary world. Contextual features determine the fundamental differences between texts functioning in the natural and invented worlds. Unlike textbooks that directly refer to reality, texts that address the imaginary world are mediated by the sender. It is enough to compare the news genres with the genres of the author's artistic discourse.

Only a few media genres are purely aliased with more or less evidence. For example, the expressive function appears implicit in informational and vocative texts. In many informational texts, only separate fragments of informative texts related to opinions, recommendations and judgments are subordinated to vocativity.

On the other hand, no media text can be purely informative: the share of the author's subjectivity will undoubtedly manifest itself in one of its parts. Expressive texts also carry some new information, but the degree of their activity is different. Although expression is subordinated to persuading the addressee and involving him in another value system, the direct (natural) or indirect (virtual) impact on the recipient is prioritised. These strategies can be called discursive. In general, when creating a written or oral text, the

main goal is to convey information rationally with the help of a cognitive effect that facilitates understanding.

All types and text genres face the main unchanging task: to achieve a pragmatic and cognitive result. The analysis of the styles and genres of texts leads to the conclusion that there is more or less practical interest in various discursive strategies. It is enough to compare political, judicial and media texts with artistic and academic genres: a student's speech at an oral exam, an applicant's defence of a dissertation at an academic council, etc.

A politician's speech, a lawyer's speech, or an advertising prospectus traditionally express such discursive strategies as a reasonable intention to act on the addressee to involve him in some other activity [8]. This pragmatic strategy does not depend on the oral or written form of the text and its connection with real-time. This conclusion can be reached by looking at some written texts of advertisements. Let's turn to the ad placed in the famous English newspaper "Financial Times":

The tourbillion split seconds competition chronograph Felipe Massa Sapphire is a watch either love or hate: *"You either regard it as an incredible piece of craft and imagination or think it looks like cheap plastic"* (Financial Times, Saturday, June 9, 2012).

The author of this prospectus advertises a costly Patek Philippe watch, repeating the personal pronouns of the second person ("you"). He demonstrates knowledge of the psychology of a potential buyer [10, p. 246]. For him, the reaction of this buyer is entirely predictable, which is confirmed by the type of newspaper that placed this advertisement: readers of the Financial Times are mainly representatives of the business elite who are interested in the state of the global economy. So, straightforward information about the watch is charged simultaneously with a solid pragmatic and cognitive effect.

The situation is somewhat different in the literary text and does not always correspond to the "principles of cooperation" mentioned by P. Grice [5, p. 56]. Galperin, in a literary text, along with cognitive and factual information (inherent in texts functioning in real-time), the aesthetic function is the leading one [6, p. 15].

A distinctive feature of literary texts is the reflection of the author's inner world, emotionality,

and expressiveness. Depending on the plot of the work, the author, actualising his pragmatic and stylistic attitudes in it, along with artistry, emotionality and expressiveness, also generates ambiguity up to the point of uncertainty. The language forms, judgments, aspirations, wishes, and apologies caused by the author produce not direct but indirect effects on the addressee, encourage him and direct his perception to a specific goal. These discursive strategies pass through the filter of the author's consciousness, generate the text's structure and actualise the reader's receptive potencies.

Additionally, the recently created works of fiction, such as the fantastic novels of J. Rowling's Harry Potter and Hollywood films, are dominated by opposite trends. The author's powerful tendentiousness enhances the pragmatic impact of these texts on the addressee, up to the manipulation of his consciousness, which leads to a weakening up to the disappearance of the aesthetic effect. Poets are well aware in practice of how voice intonation leads to the almost autonomous birth of the following lines.

A similar tendency is inherent in some academic texts. Even though all genres of this type (monographs, scientific articles, reports, lectures, etc.) are marked with the seal of verified argumentation [11, p. 37; 12, p. 18], genres such as exam answers, speeches or dissertations are devoid of a pronounced pragmatic attitude.

However, the addressee's (student) use of lecture texts or manuals written for a university audience gives his response a tangible argumentative and pragmatic intention. She was awarded scientific reports and messages addressed to participants of conferences, symposiums and seminars. As a result, the addressee has equal rights to the addressee, becoming an active participant in the discourse. Such discourse, regardless of its direct or indirect relation to real-time, is dialogised [11, p. 45].

"The concept of discourse is often associated with types and forms of speech" [7]. G. Batsevich provides a list of types of discourse (TV and radio discourses, newspaper, theatre, film discourses, advertising discourse, political, and religious), among which he also calls literary discourse. Studying works of fiction, we are dealing with literary discourse, which manifests itself in the small prose of writers of the late twentieth — early twenty-first century. Linguists note that this period is the time of new literary trends and

the search for new principles of text organisation [15]. Writers focus a lot on the selection and use of language tools. Literary text is intended for communication of a particular kind. It is designed for a special type of communicants and a specific distribution of roles between them. Therefore, the question of literary discourse sometimes acquires a debatable character. Moreover, even time aims at the idea that a literary text as a specific formation does not have a discourse because the creation of discourse and its perception cannot be represented as direct components of one communicative act. In addition, literary communication has a unique code for transmitting information and influencing the listener or reader. The creation of the text is not unconstrained and spontaneous. The author is also guided by certain attitudes, as well as communicative intentions and techniques of aesthetic influence on the addressee known to him. Because the primary purpose of literary discourse is the emotional-volitional and aesthetic impact on those to whom it is addressed, the main constitutive factor is its pragmatic essence. The functioning of literary discourse is impossible outside of dialectical relations: a writer — a work of fiction — a reader. The traditional approach to analysing a literary text involves the study of textual units, grammatical categories, connections and stylistic devices. The specificity of the fiction lies in the speaker's speech activity. Here, we mean the discursive activity of the speaker, which goes beyond the text itself and makes the interpretation of a literary work a particular type of discourse. In addition to the speaker, it is necessary to consider the reader factor, whose role is in the perception of a literary text. Therefore, literary discourse can be defined as the interaction process between the text and the reader.

Literary discourse is the speaker's discourse and characters subordinate to aesthetic communication. Yu. Lotman described the specific features of the academic type of discourse, the most important of which, in his opinion, is that the content of the message in such a discourse is a personality [9, p. 30]. The news in the literary discourse acquires the character of actualisation by the nature of its integrity. The researcher concludes that the academic discourse does not offer a new mentality but a new language for completion. Literary style can also be considered a consistent supposed/unpredictable interaction process between the text and the reader. However, the text without a reader is incomplete. In reality,

it exists in the process of its perception during the reconstruction of that part of its content that is not directly expressed in the text. Still, it is assumed that it is known to the reader and introduced by him in creating literary discourse.

Researchers also note that literary discourse can be characterised within the framework of various classifications of types of speech. According to G. Pocheptsov's category, it belongs to an unaddressed subspecies of the written kind of discourse. So, this type of discourse is one of the most complex concepts in the theory of speech. Each linguist interprets it in their own way, considering specific aspects of its nature. A literary text is the embodiment of a verbal message that conveys subject — logical, aesthetic, symbolic, emotional and evaluative information combined in the ideological and artistic content of the text into a single whole. Leading scientists and linguists refer to literary discourse as various discourses, each performing a specific function. Nowadays, the definition of the features of a work of art discourse is of particular value. In its essence, literary discourse contains the imprint of culture at a specific stage of the development of society. The address of fiction contributes primarily to the conceptualisation of knowledge, which allows it to be used in connection with their further purpose. In the most general sense, discourse should be understood primarily as the ideologically shaped speech activity of a linguistic personality that forms the verbal space of a particular scientific direction or art within the framework of interaction with other direct participants in this activity. Literary discourse should be understood as a communicative act that does not necessarily and not primarily pursue goals (such as a question, statement, threat, or promise), characteristic, for example, for interpersonal communication, or any other set of goals inherent in different types of discourse.

Thus, the purpose of literary discourse can be described as follows: through his work, the writer attempts to directly influence the "spiritual space" of the reader as a recipient to influence him and make some changes. In this case, spiritual space is a system of values, knowledge, views on a particular person's life, aspirations and desires, and personal guidelines. Another distinctive feature of literary discourse from other types of speech is that a literary text has a unique creative intra-textual reality. That is its creation was carried out under the influence of the imagination and creative energy of the au-

thor, which causes its conditional and, as a rule, fictional character. Proceeding from this, it follows that a literary text or discourse in a narrow sense is fictional, within which the relationship of the depicted world with reality is mediated, refracted through the individual author's perception of it, transformed by the author's intention, that is, conceptualised. The next feature of the literary discourse is its great variety of genre, thematic, age and ideological components.

It is necessary to point out at least two factors inherent in all types of discourse. Firstly, their generation (including the text, its inference, understanding and interpretation) is directly conditioned by the cognitive interest of the participants.

Secondly, all types of discourse are marked by one degree or another of ideologisation (it should be considered that the absence of ideology is also an ideology).

N. Zaichikova identifies three distinctive features of discourse:

- discourse presupposes text (linguistic or semi-otic);

- discourse has a cognitive basis;
- the discourse is ideological [16, p. 55].

CONCLUSIONS

Thus, in the sociolinguistic and socio-cognitive approaches to discourse, the relations between text, context and speech are the focus of attention. The reader operates within complex hybrid social and communicative situations that define the essence of any (personal or institutional) discourse. Considering such a factor is significant in understanding all aspects of human communication within the framework of such a complex communicative phenomenon as discourse. Social life introduces people to an ideology that spontaneously becomes knowledge. At the same time, the cultural factor is fundamentally essential in each type and genre of discourse. If culture is also treated as knowledge supplied by society, studying the relationship between speech and ability takes priority. These relations are considered within the framework of the socio-cognitive approach to discourse formed in the last decade.

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Влияние контекста на семантику слова

The Influence of Context on the Semantics of a Word

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Аннотация. Статья посвящена исследованию влияния контекста на семантику слова. В работе проведен анализ различных факторов, которые могут оказывать влияние на значение слова в зависимости от контекста, в котором оно используется. Автор подчеркивает важность понимания связи между словом и его контекстом при анализе текста и взаимодействии с языком. В статье рассмотрена роль лексического и грамматического контекста при определении значения слова. Слово может иметь различные значения в разных контекстах. Например, слово «банк» может означать финансовую организацию или место для сохранения денег, в зависимости от контекста, в котором оно используется. Исследование также обращает внимание на дисамбигуацию, то есть процесс определения значения слова на основе его контекста. В заключение подчеркивается, что понимание контекста является важным аспектом при работе с языком и анализе текста. Исследование влияния контекста на семантику слова помогает лучше понять процесс коммуникации и развивать более точные методы обработки естественного языка.

Ключевые слова: контекст; семантика слова; лингвистика; анализ текста; коммуникация

Abstract. The article is devoted to studying context's influence on a word's semantics. The paper analyses various factors that can influence the meaning of a word depending on the context in which it is used. The author emphasises the importance of understanding the relationship between a word and its context when analysing a text and interacting with language. The article discusses the role of lexical and grammatical context in determining the meaning of a word. A word can have different meanings in different contexts. For example, the word 'bank' can mean a financial organisation or a place to save money, depending on the context in which it is used. The study also draws attention to disambiguation, which is the process of determining the meaning of a word based on its context. In conclusion, it is emphasised that understanding context is an essential aspect of language processing and text analysis. Investigating the influence of context on word semantics helps to understand the communication process better and develop more accurate methods of natural language processing.

Keywords: context; word semantics; linguistics; text analysis; communication.

ВВЕДЕНИЕ

Семантика слова изначально определяется его лексико-семантическим составом, однако исследования показывают, что контекст иг-

рает значительную роль в интерпретации значения слова. Влияние контекста на семантику слова особенно актуально при переводе текстов на другие языки или при анализе се-

мантических изменений в ходе языковой эволюции.

Слова являются основным средством коммуникации между людьми, богатым и многогранным инструментом передачи смысловой информации. Однако, семантика слова может значительно меняться в зависимости от контекста, в котором оно используется. Это явление, известное как «влияние контекста на семантику слова», имеет важное значение в языковом анализе и понимании естественного языка.

В статье исследуется, как контекст влияет на семантику слова и как это влияние может привести к изменению значения слова или созданию дополнительных нюансов в его смысле. Рассмотрены примеры, где одно слово может иметь различные значения в разных контекстах и как это влияет на лингвистический анализ и интерпретацию текста. Проанализированы различные факторы, которые могут влиять на контекст и, следовательно, на семантику слова. Это может включать социокультурные, исторические, грамматические и лексические факторы. Важно понимать, что семантика слова всегда зависит от контекста использования, и исследование этой зависимости имеет большое значение для понимания и анализа естественного языка.

В статье рассмотрены различные примеры и исследования, связанные с влиянием контекста на семантику слова.

МЕТОДЫ ИССЛЕДОВАНИЯ

В ходе исследования использованы описательный и сравнительный методы лингвистики. В качестве исследуемого материала были выбраны корпуса текстов для анализа, чтобы выявить, каким образом слово используется в различных контекстах и с какими другими словами оно чаще всего сочетается.

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ

Семантика слова является одной из основных областей изучения лингвистики и когнитивной науки. Исследование влияния контекста на семантику слова имеет важное значение в понимании межязыковых различий, семан-

тических изменений и прагматических факторов, влияющих на интерпретацию слов.

Например, в статье Б. Нормана рассматривается вопрос о том, как выбираются антонимы для английского слова *dull* (скучный, тупой) в зависимости от контекста [5]. Статья С. Джонса и коллег демонстрирует, как контекст влияет на то, какие антонимы выбираются для этого слова [4]. Эта тема также интересна исследователям в смежных областях, таким как формальная семантика и компьютерные технологии [2, 8].

Влияние контекста на семантику слова также обусловлена композиционной семантикой. Основные идеи композиционной семантики можно объяснить так: во-первых, значение слова не ограничивается только самим словом, оно также зависит от слов, которые находятся в его близком контексте. Это означает, что для полного понимания значения слова необходимо учитывать соседние слова и общий контекст. Однако, если бы мы принимали эту идею в крайности и считали, что значение слова полностью зависит от контекста, это было бы не очень полезно для лингвистов. Поэтому вторая идея также важна: значение слова не только определяется контекстом, но может быть также наложено на него извне. Таким образом, роль контекста играет ключевую роль в определении значения слова, но оно не полностью определяется им и может включать в себя и другие влияния.

Существует два важных аспекта в взаимосвязи между значением слова и его контекстом: 1) Создание значения через контекст. Это означает, что значение слова формируется или создается благодаря контексту, в котором оно используется. Другими словами, контекст определяет, какое именно значение слова будет актуализировано в данной ситуации;

2) Контекст, определяющий значение слова. В этом случае контекст играет решающую роль в определении значения слова, и значение слова, так сказать, «налагается» на него извне. Это означает, что контекст в данной ситуации диктует, какое значение слова будет использовано.

Рассмотрим вопрос о взаимосвязи между значением слова и его контекстом с языковыми примерами.

1. Создание значения через контекст.

Пример 1. Рассмотрим слово «банка». В разных контекстах оно может иметь разные значения. В контексте «я взял банку из холодильника», слово «банка» ассоциируется с контейнером для хранения пищи. Однако в разных контекстах данное слово ассоциируется по-другому.

– Структурное или архитектурное значение: Эта банка супермаркета очень высока; Архитектура этой банки впечатляет;

– Емкость для напитков: Мне нравится пить из банки; Вода в банке всегда холодная.

– Контейнер для косметики или товаров: Она купила новую банку для крема; Магазин продает банки для косметики разных размеров.

Таким образом, значение слова «банка» определяется контекстом, в котором оно используется, и может варьироваться от контекста к контексту. Таким образом, контекст определяет, какое именно значение слова будет актуализировано.

Пример 2. Рассмотрим слово «яблоко». В контексте детской книги о фруктах, это слово будет ассоциироваться с фруктом. Однако, в контексте разговора о компьютерах, «яблоко» может быть ассоциировано с брендом компьютерной техники Apple. Здесь контекст также определяет значение слова.

2. Контекст, определяющий значение слова.

Пример 1. Рассмотрим слово «красный». Если в контексте разговора о цветах мы говорим «этот цвет – красный», то значение слова «красный» определено контекстом как цвет. Однако, если в контексте разговора о политике мы говорим: «Он представляет красную партию», то значение слова «красный» определено контекстом как политическая ассоциация (левая партия).

Пример 2. Рассмотрим слово «барьер». В контексте спортивных соревнований «Он перепрыгнул барьер» указывает на препятствие на дорожке. Однако, в контексте разговора о психологии «Он столкнулся с эмоциональным барьером», «барьер» указывает на психологическое препятствие. Здесь контекст определяет значение слова.

3. Дополнительные коннотации и сюрприз в контексте

Пример 1. В фразе «Она – настоящая роза среди колючек» слово «роза» обычно ассоци-

ируется с красотой и нежностью, но в данном контексте оно также обретает дополнительную коннотацию – она выделяется на фоне «колючек», что может означать ее уникальность и ценность.

Пример 2. В фразе «его ответ был настолько неожиданным, что это стало настоящим сюрпризом» слово «сюрприз» указывает на нечто неожиданное и необычное, что может вызывать удивление.

Все эти примеры показывают, как значение слова может меняться в зависимости от контекста, и как контекст может создавать дополнительные значения или ассоциации для слова, делая процесс взаимодействия между словами и контекстом богатым и интересным аспектом лингвистического анализа.

Текст подчеркивает, что оба этих аспекта взаимодействуют между собой. То есть значение слова может создаваться контекстом, но также контекст может быть определен значением слова, которое уже существует. В некоторых случаях, контекст может добавить дополнительные коннотации к слову (дополнительные значения или ассоциации), а также создать сюрпризный эффект при использовании определенных слов в определенных контекстах.

Исследователи из разных лингвистических школ и теорий могут придавать разный вес этим двум аспектам, и важно учитывать, что влияние контекста на семантику слова может проявляться по-разному в разных языках и с разными словами.

Результаты анализа показали, что контекст играет важную роль в определении семантики слова. Во многих случаях контекст может изменять или расширять значение слова, добавлять оттенки значения или влиять на его толкование. Например, слово «быстрый»: «быстрый автомобиль» – здесь слово «быстрый» описывает скорость автомобиля; «быстрое решение» – в этом контексте «быстрый» означает оперативное или быстрое принятие решения. Слово «яркий»: «яркая луна» – здесь «яркий» описывает яркость света, светимость луны. «Яркая личность» – в этом случае «яркий» относится к индивидуальности человека, выразительности или яркости его личности и т.д.

«Многозначность слова, в основном, определяется текстом (контекстом). Чем больше

разных текстов используют слово, тем больше оно выражает значений. Поэтому необходимо определять семантику каждого лексема относительно семантики других лексем (то есть в контексте). Таким образом, каждая семема реализуется в контексте других семем и обязательно проявляется в тексте» [1]

Автор Н. Соломка изучая влияние контекстного окружения на функционирование вербальных единиц в речи, стремится изучить парадигматические и синтагматические отношения между элементами семантических структур мотивирующего слова и лексемами в контекстном окружении. Автор также упоминает использование описательного метода, контекстного метода, анализа словообразования и компонентного анализа в исследовании. В целом, цель исследования заключается в определении роли контекста в возникновении лингвистических явлений, таких как антонимия, синонимия, омонимия и полисемия [7].

Автор Б. Норман в своем исследовании подчеркивает важность композиционного (комбинаторного) процесса, который включает поиск (выбор) лексических партнеров для слов по синтагматической цепочке. В этом процессе семантические единицы, участвующие в процессе, должны актуализироваться – они должны входить в ясное поле сознания. Так называемый «здравый смысл», основанный на предыдущем опыте человека, действует как фон и гарант этого композиционного процесса [5].

В разных контекстах слово может приобретать различные значения, а также может вызывать разные ассоциации и представления. Это объясняется тем, что семантика слова не является статичной и зависит от контекстуальных факторов. Более того, влияние контекста расширяется на грамматические и прагматические аспекты. Например, в предложении «Он взял яблоко» слово «взял» может означать «взять физически» или «купить», в зависимости от контекста и ситуации. Такое изменение семантики слова в контексте становится особенно важным при переводе текстов и понимании межъязыковых различий.

В некоторых исследованиях как основу данного процесса указывают метафоризацию значения слова. «Индивидуальные значения в лингвистике также называют текстуаль-

ными значениями. Все показанные до сих пор значения, включая синонимические значения, входят в структуру значения слова. Однако текстуальные значения не включены в эту структуру. Текстуальное значение – это значение слова, связанное только с определенным текстом и не встречающееся в других текстах. Текстуальное значение слова зависит от его метафорического использования» [1]

Влияние контекста на семантику слова является активной областью исследований в области лингвистики и психолингвистики. Существует несколько различных теорий, которые объясняют механизмы этого взаимодействия.

Одна из основных теорий, связанных с влиянием контекста на семантику слова, – это теория активного смысла. Согласно этой теории, значение слова формируется на основе его взаимодействия с другими словами в контексте. Контекстные факторы, такие как грамматические отношения и синтаксические конструкции, могут изменять или расширять значения слова.

Другая теория, которая объясняет влияние контекста на семантику слова, – это теория резонанса. Согласно этой теории, значения слова связаны с концептуальными рамками и ассоциациями, создаваемыми в уме говорящего. Контекст может активировать определенные рамки и ассоциации, что приводит к определенным значениям слова.

Исследования в области психолингвистики также подтверждают влияние контекста на семантику слова. Множество экспериментов показали, что значением слова может быть определено только путем прочтения или восприятия контекста. Например, одно и то же слово может иметь различное значение в различных контекстах, что подтверждает гибкость семантики слова в зависимости от контекста.

Обзор исследований в данной области предоставляет дополнительные примеры, которые подтверждают теоретические концепции. Некоторые исследования концентрируются на анализе лингвистического контекста, такого как синтаксические отношения и лексические связи. Другие исследования рассматривают социокультурный контекст и его влияние на значения слова. В целом, исследо-

вания подтверждают, что контекст является важным фактором, влияющим на семантику слова, и его анализ необходим для полного понимания значения слова.

ВЫВОДЫ

Результаты исследования подтверждают, что семантика слова может быть изменена или расширена в зависимости от контекста, в ко-

тором оно используется. Это указывает на важность учета контекста при интерпретации и понимании значения слова.

Изучение влияния контекста на семантику слова – это область лингвистической семантики и прагматики. В разных языках и различных контекстах слова могут приобретать разные смысловые оттенки.

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The Power of Cohesion: Unlocking Informativity in Texts

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Abstract. This article delves into the intricacies of literary texts, shedding light on their distinct characteristics. Within this domain, cohesion and coherence are two pivotal components shaping literary works' essence. Literary text and discourse are intricately intertwined, forming a unified entity within language. Furthermore, the concept of informativity assumes a paramount role in the genesis of textual content.

Coherence is a central pillar of literary expression, embodying the seamless integration of logical and semantic elements within the literary text. This harmonious union is primarily facilitated through the application of cohesive ties, which function as the connective threads binding the various facets of the text together. The nuanced deployment of diverse forms of cohesive relations enhances the overall effectiveness and leaves a lasting impression on the reader, thus contributing to the text's literary richness and impact.

Keywords: literary texts; cohesion; coherence; informativity; text formation; semantic interrelation.

INTRODUCTION

The art of effective communication lies in the words we choose and how we structure them to convey meaning. Whether in written form or spoken discourse, the seamless flow of information within a text is a critical element that determines its impact. This article delves into the intricate interplay of cohesion, coherence, and context informativity in text formation.

In the world of language, the quest for informativeness is paramount. When an author presents new knowledge or insights to a reader or listener, the text comes alive with purpose. However, it is not enough for information to be merely novel; it must also be presented in a way that captivates the audience. In this pursuit, the notions of coherence and cohesion emerge as guiding principles.

A text is not merely a collection of grammatical sentences but a semantic construct. Hence, the chosen words and their arrangement must enhance, rather than hinder, the conveyance of information. The journey from grammatical correctness to semantic richness is a fascinating exploration of the depths of language and communication.

This article sheds light on cohesion's critical role in perfecting informativity and delves into the often-overlooked aspect of punctuation and intonation. In both written and spoken forms, these elements play a significant role in structuring information and conveying nuances of meaning. They are the subtle cues that guide readers and listeners through the intricate maze of words.

As we embark on this linguistic journey, we will uncover how cohesion and cohesive ties weave together the fabric of informativity in texts. By the end of this exploration, it will become evident that the power of cohesion goes far beyond the mechanics of language; it is the key to unlocking the true potential of communication in all its forms.

Literature review

Cohesion, first conceptualised by [7], forms the structural foundation of coherent discourse. The theory posits that cohesive devices such as reference, substitution, ellipsis, and conjunctions connect ideas within a text, creating a logical and fluid progression of thought. The study [8] extended this framework by emphasising cohesion's

pragmatic and functional aspects, highlighting its role in shaping the reader's interpretation of the text [8].

Recent research has explored various facets of cohesion. The author [11] delved into lexical cohesion, emphasising how the choice of words, including synonyms and antonyms, contributes to coherence. Similarly, the author [5] investigated cohesive ties in academic writing, shedding light on the nuances of cohesion in specialised discourse. These studies underscore cohesion's importance in maintaining textual coherence and facilitating comprehension.

Informativity, as a concept, hinges on the idea that a text should not merely convey information but should do so in a manner that adds value to the reader's knowledge. In the realm of linguistics, informativity is often associated with the notion of "given" versus "new" information [12]. Data refers to content familiar to the reader, while new information introduces novel concepts or details. It is this introduction of further information that enhances the informativity of a text [12].

Scholars have explored informativity in various contexts. The author [1] researched how spoken language conveys informativeness through prosody and intonation. They highlighted the role of pitch patterns in signalling new or contrastive information. In computational linguistics, information retrieval studies [13] have focused on extracting and ranking documents based on their informativeness, demonstrating the practical applications of the concept.

The relationship between cohesion and informativity is intricate and symbiotic. Cohesion mechanisms, such as reference and conjunctions, enable the introduction and linking of new information within a text [7]. Lexical cohesion, including synonyms and antonyms, can enhance informativity by adding nuance to familiar concepts [11]. Moreover, the strategic use of cohesive devices can guide readers to recognise the informativeness of specific segments [5].

The literature reviewed here demonstrates that cohesion and informativity are not isolated constructs but deeply intertwined in textuality's fabric. Cohesion provides the structural framework for conveying informativeness, and informativity, in turn, enriches the reader's understanding of the text. By exploring the synergy between these two elements, this article aims to illuminate how

language constructs contribute to effectively communicating ideas across various genres and contexts.

RESULTS AND DISCUSSION

Several prominent researchers in the 20th century, including [2, 4, 7], conducted extensive research on text and discourse. Their investigations encompassed various dimensions, such as their societal relevance, pragmatic implications, and social significance, leading to the publication of numerous scholarly works in these areas.

A key aspect of their research involved a deep exploration of discourse, which was often chosen as the central subject of their studies. In this context, a text is defined as a collection of interconnected statements where the logical relationship between two or more sentences qualifies them as a cohesive text. While text and discourse share commonalities, it's essential to recognise that they exhibit nuanced differences.

Notably, the author [3] introduced the concept of discourse as the fusion of text and context, underscoring the intricate relationship between the content of a given text and the surrounding contextual factors. This perspective further enriches our understanding of how language functions within society and underscores the significance of holistically studying texts and discourse. Considering this perspective, it becomes evident that discourse encompasses a broader scope than text. This socio-linguistic viewpoint has given rise to a distinct field of study known as sociolinguistics, which explores the intricate relationship between language and society. When categorising discourse, it can be classified into two primary forms: oral and written, depending on the mode of communication employed.

However, not every form of written language, such as ancient inscriptions on rocks, can be categorised as discourse, although it may contain valuable information. As previously emphasised, the fundamental aspect of speech lies in its interrelation or coherence, which serves as its defining feature.

Since discourse represents verbal communication, it often exhibits more effectiveness and poetic expression. For instance, consider the exclamation "Great bunions!" in O. Henry's story "Shoes". In this context, such expressions within

discourse serve as vivid expressions of surprise, adding depth and impact to the narrative [10].

Such exclamatory expressions serve a dual purpose: to captivate the reader's attention and enhance the overall readability of literary texts. In discourse communication, emphasis is placed on its poetic qualities, its inherent logical coherence, and the essential presence of substantive arguments.

Recognising that the length of a text or discourse does not determine its significance or effectiveness is crucial. Even a concise composition of two or more interconnected sentences can constitute various forms of speech. Moreover, it's worth noting that a text can be as brief as a single word, exemplified by road signs like "Stop!" – which, in its brevity, conveys a clear and meaningful message, standing as a self-contained text.

N. Enkvist emphasised the pivotal roles of coherence and cohesion in shaping the structure and composition of a text. These elements are instrumental in ensuring that the content flows logically and seamlessly, ultimately contributing to the overall cohesiveness of the text [3]. This statement highlights the close relationship between discourse and text linguistics and the field of psychology. It underscores how the coherence of a text is intricately tied to various factors, including the actions portrayed within the text and the representation of knowledge, such as age, gender, social status, location, and time frame associated with the context.

Over the past two decades, researchers have shown a growing interest in studying discourse and text, particularly in teaching methodologies. This signifies the evolving importance of understanding how language functions within the broader context of communication and education.

Moreover, the term "discourse" not only pertains to the linguistic form but also delves into the role of the language user or speaker. This highlights the multidimensional nature of discourse analysis, where language is not just a set of words and structures but a dynamic tool individuals use to convey meaning and engage in communication [2]. Teaching discourse encompasses the analysis of language usage within a specific context, considering factors such as the learner's proficiency in the language and the temporal and spatial aspects of the situation. This analysis also intertwines with cognitive linguistics, as dis-

course is closely linked to consciousness and the mental processes of language users.

While some linguists equate discourse with text, it's essential to acknowledge that they share similarities and exhibit distinctive characteristics. A lesson involves the language user's competence and contextual skills in the educational context. Challenges arise in teaching discourse, mainly due to its dependency on place and time situational factors. For instance, individuals must navigate the social dynamics inherent in oral discourse when speaking or communicating in a foreign language.

Another crucial facet of literary text analysis pertains to the concept of the author's intention and the communicative and pragmatic aspects of the text. In recent years, a subfield known as pragmatics linguistics has emerged to explore these dimensions. The notion of "author's intention" was first introduced by J. Austin, a key figure in the development of speech act theory. It refers to the speaker's or writer's communicative purpose, which is discernible in literal and figurative texts.

Within this article, we specifically address the pragmatic aspect of literal text. Like other text types, literal text serves multiple functions, including communication, information dissemination, and aesthetic appeal. Every writer aspires to leave an impression on the reader and exert influence. However, it's crucial to recognise that the reading process is reciprocal, involving the encoding and decoding information. Moreover, understanding the author's intention and decoding of data is contingent on the reader's background knowledge and contextual awareness.

The essence of any form of communication is to capture the recipient's attention and bring focus to a particular situation or topic at hand. This is vividly illustrated in O. Henry's narrative "Mammon and the Archer", where the use of language serves a profound pragmatic purpose. For instance, the strategic inclusion of the colours red, white, and blue subtly alludes to the American flag's hues, symbolising the democratic nature of America. The soap magnate's desire to outdo his aristocratic neighbour underscores the theme of class conflict and rivalry.

Another instance involves the phrase "going over the hundred mark for clothes", signifying spending more than a hundred dollars on clothing. The statement "I bet money on the money every

time" reveals an unwavering belief in the omnipotence of wealth, as the speaker is willing to wager a substantial sum with steadfast confidence in their ability to win, reflecting a fearless attitude toward potential loss [10, p. 125].

Pragmatics is the branch of linguistics that delves into the nuances of contextual meaning [6]. It's concerned with understanding how language functions in communication and exploring concepts like presupposition, reference, and inference. Pragmatics plays a pivotal role in the interpretation of text.

In textual strategy, authors employ various expressive devices, such as metaphor, metonymy, irony, and more, to embellish their written works. These literary tools enhance the depth and richness of the literal text, adding layers of meaning and fostering a deeper connection between the author and the reader. For example, *You've been to college, but she'll overlook that. Henry is "full of unexpectedness", to quote his own words. Therefore, it is quite possible that the word "college" is used in the meaning of "prison" (English slang) [10].* Here, metonymy is used to make the text more colourful.

Two fundamental elements, coherence and cohesion, are occasionally conflated, yet they represent distinct aspects of textual analysis. Diverse groups of researchers approach the study of coherence and cohesion from varying perspectives.

Coherence pertains to a text's logical and semantic structure, focusing on how ideas are interconnected to form a cohesive whole. On the other hand, cohesion primarily addresses the linguistic interrelation within the text or between paragraphs, emphasising the mechanisms that bind the text together. The examination of cohesion received significant attention in 1976 when Halliday and Hasan conducted substantial research in this domain. Coherence, a vital category in textual analysis, is realised through cohesive means or ties.

Cohesion can be categorised into three main groups: grammatical, stylistic, and lexical. Grammatical cohesive means encompass elements like conjunctions (e.g., "or", "nor", "but", "not only...but also") and pronouns (e.g., "what", "whom", "whose", etc.), which serve to establish grammatical relationships within the text.

Logical, cohesive means represent the text's sequence, simultaneity, and cause-and-effect relationships. Keywords like "first", "second", "in the

end", and "first of all" assist in structuring the logical flow of ideas. In some cases, cohesive means can be denoted through letters (e.g., "a, b, c") or numbers (e.g., "1, 2, 3, I, II"), enhancing the organisation and readability of the text.

Halliday and the author [8] categorise grammatical cohesive ties into four distinct types: reference, substitution, ellipsis, and conjunction. Conversely, transitions are pivotal in linking one idea to another, facilitating the reader's comprehension of the progressive flow of ideas. These transitions connect individual words and establish relationships within paragraphs and sentences.

Transitions are typically classified into four primary groups: additive, adversative, causal, and sequential. Adversative conjunctions, for instance, can convey features such as addition, introduction, or similarity to other ideas. Intersections that denote expansion include words like "and", "and also", "either...or", "neither...nor", "not only...but also", "or", and "or else", among others. Introductory conjunctions, such as "for example", "for instance", and "especially", serve to introduce ideas. Reference conjunctions like "as for this", "the fact that", and "about this" help establish connections between concepts. Similarly, words like "similarly", "likewise", "in the same way", and expressions like "I mean" and "that is" aid in clarification and elaboration.

Consider the sentence: *"Mr. Black was rich and noble"*. In this case, adversative conjunctions highlight contrast, conflict, concession, or contradiction. Words like "conversely", "still", "yet", and "though" are used to convey contrast, while expressions like "even more", "above all", and "furthermore" emphasise particular aspects.

Causal conjunctions, which signify cause and effect, reason, or purpose, include terms like "because", "for", "that is why", "in result", "in conclusion", "as", "in order", and "in order to". These conjunctions are employed not only in literary discourse but also in everyday speech.

Lastly, sequential conjunctions are employed to arrange sentences chronologically or logically, playing a crucial role in maintaining the coherence of written texts. These conjunctions ensure that sentences are structured logically and sequentially, preventing readers from becoming a jumble of unrelated statements. Sequential convergences such as "first", "then", "after this", "at last", "finally", and "in the end" enhance the text's fluidity by connecting and interrelating sentences [7].

When examining the concept of cohesive ties, we can identify various linguistic elements used to enhance a text's overall meaning and flow. For instance, consider the following passage: *"One evening at the end of May, a middle-aged man was walking home from Blackmoor. His legs were thin and weak, and he could not walk in a straight line"*. Here, the phrase "his legs" serves as a substitution (a form of grammatical cohesion) for "a middle-aged man's legs". The use of pronouns in this context helps avoid redundancy [9].

While grammatical cohesion involves elements like reference, ellipsis, substitution, and conjunction, lexical cohesion is achieved through specific lexical units, such as synonyms. For example, we might use the term "heavy rain" instead of "strong" or "hard". Occasionally, we employ synonyms to add a poetic or literary quality to the text [6, 7].

In addition to the previously mentioned aspects of cohesion, it's essential to recognise that cohesion can also be semantically realised in literary texts. Readers may not immediately notice any explicit cohesion markers in this type of cohesion. Instead, cohesion in such cases relies on the "context of the text". Semantic cohesion is closely tied to the situational context within the text. For example, consider the simple two-member, unextended sentence: *"They repeated"*. This sentence remains unclear who "They" refers to and what exactly they "repeated". However, if we expand upon this sentence, creating a more detailed version like *"The Smiths repeated our words"*, the meaning becomes more precise and informative. As previously mentioned, this highlights the relationship between the text and the contextual situation.

Elements like coherence, cohesion, and context informativity play vital roles in text formation. When an author presents new information within a text, it is considered informative to the reader or listener. On the other hand, if the information is already common knowledge, the text may lack informativeness. Therefore, the data must be fresh and insightful to be considered informative. A reader is a grammatical construct comprising sentences and a semantic one. Consequently, if we arrange grammatically correct but semantically unrelated words, the result will not be informative but somewhat illogical, incomprehensible, and lacking meaningful discourse.

Texts are interpretable language units, and informativity goes beyond the medium, whether written or oral, genre, or style. Thus, informativity is not solely dependent on the length of a text; even one or two words can constitute an informative text. This is commonly seen in warnings, notices, and signs and can also be observed in literary texts. Cohesion enhances informativity and plays an essential role in textual coherence.

While we have discussed cohesive ties, it's important to note that punctuation also contributes to coding information in a text. In written text, punctuation aids in understanding the complete meaning by logically separating thoughts. In English, intonation patterns are similar to spoken language, categorising sentences based on their communicative function. Each intonation unit or tone group conveys a specific piece of encoded information and contributes to the overall textual process. In spoken discourse, this process enhances the informativity of the text. In the linguistic analysis of literary texts, a significant emphasis is placed on cohesion, cohesive ties, and their role in conveying informativeness.

CONCLUSIONS

In the intricate landscape of effective communication, the dynamic interplay between cohesion and informativity emerges as a fundamental force. This journey through linguistic cohesion and the richness of informativity reveals how language constructs contribute to our ability to convey ideas, emotions, and knowledge through texts.

As illuminated by [7], cohesion is the unseen threads that weave a text into a coherent whole. The intricate web of cohesive devices, from reference and substitution to ellipsis and conjunctions, orchestrates the symphony of language, guiding the reader through the narrative and ensuring the logical progression of thought. As our exploration has shown, cohesion goes beyond grammatical correctness; the glue binds ideas, sentences, and paragraphs, enabling them to flow seamlessly.

In parallel, informativity, as explored through the lens of [1, 12], presents itself as the lifeblood of communication. The essence of informativity lies in introducing new knowledge, concepts, or insights to the reader. The spark transforms a mere collection of words into a valuable repository of information. Informativity enhances comprehen-

sion and engages readers, igniting their curiosity and thirst for knowledge.

Yet, the true power of textuality is unveiled in the symbiotic relationship between cohesion and informativity. Informativity is transported to the reader through cohesion mechanisms, from lexical choices to grammatical ties. The strategic use of cohesive elements guides the reader's recognition of what is genuinely informative within a text.

As we navigate this terrain, we recognise that cohesion and informativity are not isolated concepts but integral components of successful communication. They transcend genres, from academic papers to everyday conversations, and bridge the gap between written and spoken dis-

course. These linguistic constructs are the architects of effective communication, whether in the cadence of spoken words or the structure of written paragraphs.

In closing, this exploration of cohesion and informativity serves as a reminder of the enduring power of language. It is a testament to the beauty of well-crafted texts and their profound impact on our understanding of the world. As we unravel the intricacies of language, we unlock the potential to engage, inform, and inspire through the written and spoken word. As the silent forces behind effective communication, cohesion and informativity empower us to connect, learn, and share in the collective journey of human expression.

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