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INSIGHTS INTO TRANSFORMATION OF EUROPEAN SECURITY POLICY IN THE LIGHT OF THE WAR IN UKRAINE AND ESCALATING GEOPOLITICAL CHANGES**Radoslav Ivančík ¹, Jiří Dušek ²**^{1*} *Constantine the Philosopher University, Faculty of Arts, Department of Philosophy and Political Science, Hodžova 1, Nitra, Slovakia*² *The College of European and Regional Studies, Department of Department of Public Administration and Management, Žižkova tř. 1632/5b, České Budějovice, Czechia*E-mails: ^{1*} rivancik@ukf.sk (Corresponding author); ² dusek@vssers.cz*Received 14 September 2025; accepted 12 January 2026; published 30 March 2026*

Abstract. This article analyses the transformation of European security policy resulting from Russia's invasion of Ukraine, the deteriorating global security environment, and ongoing geopolitical shifts. The author aims to identify the principal strategic, institutional, and geopolitical challenges faced by the European Union in pursuing its security policy, and to assess its capacity to respond as a respected, autonomous actor in a multipolar world. The research employs a qualitative, theoretical, interdisciplinary approach, based on content analysis of political and security documents, critical analysis of secondary sources, and scholarly literature. The author highlights the fact that the war in Ukraine has significantly accelerated the EU's geopolitical maturation process; however, its practical capacity for action is limited by internal fragmentation, the unanimity-based decision-making mechanism, and a persistent dependence on transatlantic ties. Simultaneously, the study points to the tension between the EU's normative ambitions and its actual ability to project security from both a regional and a global perspective. This study contributes to the academic discussion on the redefinition of the European security order and the EU's position in an era of worsening regional and global security environments and escalating geopolitical change.

Keywords: European Union; security policy; security order; institutional challenges; war in Ukraine; multipolarity; rivalry; fragmentation; geopolitical transformation

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1. Introduction

Russia's invasion of Ukraine in February 2022 represents a watershed moment in the contemporary history of the European region. This violent breach of international law simultaneously undermined several fundamental principles of the European security architecture, including respect for territorial integrity, the refraining from the use of force, and the peaceful settlement of disputes, all enshrined in the UN Charter and the OSCE Helsinki Final Act. Russia's aggression against Ukraine also exposed the unpreparedness of the vast majority of European states for a high-intensity conventional military conflict and subjected the Union to both a strategic and an existential test of its ability to act as a security and defence actor (Zakharchenko et al., 2021; Brhlíkova, 2022; Riddervold & Rieker, 2024; Ivančík & Andrassy, 2025).

The war in Ukraine is unfolding during a period of rising regional and global uncertainty, deepening multipolar competition, and the fragmentation of the international order. European states are consequently facing not only traditional threats, but also hybrid, societal, cyber, and energy challenges. This combination of factors has led to a revitalisation of the discussion surrounding the concept of European Strategic Autonomy and the necessity of redefining existing EU security and defence policies to reflect the reality of the 21st century (Miró, 2023; Maurer et al., 2024). A new geopolitical configuration has thus emerged, in which the European Union strives not only to protect its own space, but also to strategically re-evaluate its position in the global context.

According to some authors, the EU's response to the war in Ukraine constitutes a "geopolitical awakening" and a fundamental transformation comparable to a "Zeitenwende"—an epochal shift in the perception of security in Europe (Scholz 2022; Blockmans, 2022; Bunde, 2022). This transformation has manifested across several areas—from the unprecedented rapid adoption of sanctions packages and the mobilisation of financial instruments like the European Peace Facility (EPF), to providing direct support to Ukraine through military materiel, training, and the reception of millions of refugees (Riddervold & Rieker, 2024). Crucially, the decision to grant Ukraine candidate status signals a shift in understanding EU enlargement as a strategic tool of security policy (Håkansson, 2023; Alcaro & Dijkstra, 2024).

From a security and defence perspective, this situation has prompted a reflection on existing deficits in defence capabilities and capacities, as well as the limited possibilities for coordinated European decision-making in crisis situations (Michaels & Sus, 2024). Although the transatlantic partnership remains the foundation for securing European security, primarily thanks to NATO guarantees, there are increasingly vocal calls for Europe to assume greater responsibility for its security and defence and to be capable of acting independently where necessary (Varma, 2024). This pressure has resulted in new initiatives that reflect this ambition in a changing world order (Kazanský & Andrassy, 2019; Jurčák & Marek, 2019; Jurčák & Ivančík, 2023; Hrnčiar & Kompan, 2023).

Simultaneously, it is evident that security issues are increasingly intertwined with areas such as energy, digitalisation, communications, industrial policy, and the protection of critical infrastructure (Kavan et al., 2020; Trifunović et al., 2021; Majchút, 2024; Andrassy & Ondruš, 2024; Dirma et al., 2024; Ivančík et al., 2024; Okunevičiūtė Neverauskienė et al., 2025; Menshikov et al., 2025).

The concept of so-called Open Strategic Autonomy, championed notably since 2020, is thus acquiring new significance, becoming a unifying framework for developing resilience against external shocks. Strategic partnerships and the redefinition of global relations are becoming a key element of the Union's geopolitical orientation (Palárik et al., 2018; Lenovský et al., 2019; Kompan & Hrnčiar, 2021; Ferreira-Pereira & Smith, 2021), with the EU striving to combine its normative values with pragmatic geopolitical thinking (Jurčák & Martaus, 2021; Ivančík & Andrassy, 2025).

In light of these shifts, it is evident that the current security environment in Europe is not merely a reaction to a specific conflict, but a reflection of a deep systemic transformation. This necessitates not only the adaptation of the EU's institutions and capabilities, but also a revision of security thinking, strategic documents, and, crucially, scholarly reflection in the form of critical research into European security policy under new geopolitical conditions.

The dynamic nature of European security policy post-2022 confirms that the European Union can no longer be viewed solely as a normative actor grounded in multilateralism, economic integration, and civilian power. It must also be examined as an actor with the potential for strategic action, geopolitical responsibility, and defence engagement (Borrell, 2024; Maurer et al., 2024). Consequently, the war in Ukraine has opened up the fundamental question of the extent to which the EU is capable of transforming its structures and policies to effectively confront the challenges of a multipolar world and hybrid confrontation with authoritarian regimes

(Riddervold & Rieker, 2024; Alcaro & Dijkstra, 2024). These changes transcend the scope of routine crisis management and require rigorous scholarly scrutiny of the EU's strategic adaptation as an actor in the shifting regional and global security order.

Analysing the Union's security and defence policy now requires an approach that moves beyond traditional dichotomies between inter-state and supranational decision-making, civil and military power, or normative and strategic logic. Conversely, it is necessary to examine the EU as a dynamic entity operating at the intersection of geopolitical imperatives and value commitments, facing a plurality of actors, asymmetries in defence capabilities and capacities, and diverse strategic cultures among member states (Sus & Michaels, 2024; Maurer et al., 2024; Varma, 2024). The growing recognition of the need to integrate security, economic, and technological strategies into a unified paradigm, as exemplified by the concept of Open Strategic Autonomy (Miró, 2023), significantly contributes to this.

Scholarly examination of European security and defence policy is also vital for understanding the EU's internal cohesion during times of crisis and challenges that test the Union's capacity to act as a unified actor. Specifically, processes such as the coordination of arms deliveries, the joint adoption of sanctions, the development of military capabilities via PESCO, the utilisation of the EPF, and the implementation of the Strategic Compass represent new forms of collective decision-making that warrant systematic academic attention. Moreover, geopolitical changes and pressure on transatlantic relations reopen the question of the extent to which the Union can be an autonomous security actor and where its limits lie—a theoretically and empirically substantial research challenge (Helwig, 2024).

From the perspective of scholarly relevance, the current investigation into the security situation in the European region and the EU's security and defence policy is therefore not only timely but also conceptually and analytically indispensable. This is because fundamental security concepts are undergoing transformation, the roles of state and supranational actors are being redefined, and the importance of "geopolitical literacy" in political and academic discourse is increasing. Given this, the aim of this article is to contribute to the current scholarly discourse on EU security and defence policy post-2022 through an analytical reflection on four key dimensions: geopolitical transformation, strategic autonomy, institutional challenges, and the Union's global security relations. This research thus provides a theoretical and practical contribution to deepening the understanding of security dynamics in the European region during a period of strategic uncertainty.

Methodologically, the article is based on a qualitative analysis of relevant documents, secondary literature, and expert studies, utilising an analytical-descriptive and interpretative approach. This theoretical and methodological framework allows for a holistic comprehension of the issues surrounding the EU's security transformation and the identification of its consequences for the European and global order. The combination of analytical rigour, interdisciplinarity, and empirical grounding ensures the relevance of the findings not only for academic debate but also for public policy-makers and the security and defence expert community.

2. The Geopolitical Transformation of the EU following the Russian Invasion of Ukraine

Russia's invasion of Ukraine represents not only a direct security threat to neighbouring states and the wider European space, but also a fundamental geopolitical rupture that has thoroughly tested the European Union's capacity to respond as a security and geopolitical actor. While the EU was often criticised before 2022 for its sluggishness, lack of coordination, and deficiency in strategic culture, events following February 2022 revealed a significant degree of political and strategic mobilisation, suggesting a process of the Union's transformation from a normative power into a geopolitical entity (Alcaro & Dijkstra 2024; Ivančík & Andrassy, 2024; Maurer et al., 2024). This transformation manifested in the rapid implementation of sanctions packages against Russia,

unprecedented military and financial aid to Ukraine, and a fundamental strengthening of security and defence policies at the EU level.

A core element of this geopolitical response was the unparalleled utilisation of the European Peace Facility (EPF), which was activated to finance the supply of military equipment to the Ukrainian armed forces—a move that historically represented a breakthrough in the perception of the EU as an exclusively civilian actor (Riddervold & Rieker, 2024). Equally remarkable was the coordination in adopting economic sanctions, which targeted key areas of the Russian economy, including the energy sector, financial institutions, and technology exports (Ivančík & Andrassy, 2024). These measures signal not only a strategic reaction but also the EU's willingness to act decisively and uniformly, despite the differences among member states.

The geopolitical dimension of this transformation is also closely linked to a shift in the EU's discourse and identity. Following February 2022, terms such as the "geopolitical Union" and "strategic responsibility" became part of the official statements made by the European Commission, the European Council, and the High Representative of the Union for Foreign Affairs and Security Policy. Commission President Ursula von der Leyen herself declared that the EU must learn to act geopolitically in crises (European Commission, 2022), confirming the need for a change in both mindset and practice. The EU's Strategic Compass, adopted in March 2022, explicitly addresses the new security reality, naming Russia as a threat and defining concrete steps to strengthen the EU's capabilities in crisis management, defence, and resilience (Jurčák & Ivančík, 2023).

An important aspect of the geopolitical transformation is the redefinition of the perception of the neighbourhood and its security importance. Ukraine, along with Moldova and Georgia, gained a new status in European policy—not merely as partners within the Eastern Partnership, but as countries with a genuine membership perspective, confirmed by the granting of candidate status to Ukraine and Moldova in June 2022. This step reflects a shift in understanding EU enlargement from an instrument of normative influence to a strategic tool of geopolitical stability (Schramm, 2025). This very shift indicates that the EU is beginning to recognise the need to actively shape its strategic environment rather than passively adapt to it.

Part of the EU's geopolitical awakening is also a broader discourse on European security and defence identity within the framework of transatlantic relations (Bergmann, 2020). While NATO remains the foundational pillar of Europe's collective defence, the invasion of Ukraine highlighted the risks of unilateral dependence on the United States, particularly in the event of political change in the American executive (Michaels & Sus, 2024). In this context, the question of European strategic responsibility acquired a new dimension—not as an alternative to NATO, but as a complementary pillar that strengthens the EU's capacity to act autonomously within its immediate geopolitical neighbourhood.

A crucial symbolic and practical aspect of the EU's geopolitical transformation is the "Zeitenwende"—a term adopted from German Chancellor Olaf Scholz's February 2022 speech, signifying a turning point in German and European security policy (Scholz 2022). This term quickly established itself as a concept describing an epochal shift in security thinking that has permeated the discourse of European institutions. The so-called "spirit of the Zeitenwende" thus symbolises the aspiration for a more realistic grasp of the security environment, a higher level of investment in defence, and a move away from the naïve belief in long-term stability based solely on norms and diplomacy (Bunde, 2022; Mello, 2022).

Another significant aspect of the EU's geopolitical transformation is the deepening understanding of the nature of hybrid threats and their implications for defence and security policy. Russian aggression was not just a conventional military attack but a complex hybrid operation, encompassing disinformation, cyber-attacks, energy pressure, food security manipulation, and political interference in the internal affairs of member states (Müftüler-Bac, et al. 2024). These experiences have forced the EU to accelerate the development of strategic instruments in

cyber security, critical infrastructure protection, and strategic communication, thereby strengthening its ability to comprehensively respond to diverse threats and pressures.

The shifts in the EU's geopolitical orientation have also been reflected in the evolution of strategic planning. The adoption of the Strategic Compass represents a pivotal step towards greater consistency, predictability, and coordination of EU defence initiatives. This document, approved in March 2022, defines four basic pillars: the ability to act, securing safety, investing in capabilities, and partnerships (EEAS, 2022). Its objective is to provide a common framework for member states in shaping defence priorities and building compatible and interoperable forces. The Strategic Compass also constitutes a paradigmatic shift in the understanding of security—from reactive crisis management to proactive strategic thinking (Nitoiu, 2024).

The EU's geopolitical transformation is not, however, without limitations and paradoxes. Despite the apparent mobilisation and activism, fundamental differences persist among member states regarding the depth of their commitment, threat perception, strategic priorities, and investment capacity (Helwig, 2024). Significant divergences between Eastern European, Nordic, and Western European states in perceiving Russia as an existential threat illustrate the continuing plurality of security cultures within the Union. While this plurality reflects the reality of diversity in the EU, it simultaneously hinders the emergence of a truly unified strategic culture and complicates consensual decision-making in times of crisis.

A further challenge is the sustainability of political will and the EU's long-term ability to act geopolitically (Bergman, 2020). The dynamic response to a shock may, over time, be replaced by "crisis fatigue," fragmentation, or a return to previous preferences for passive multilateralism. Moreover, a geopolitical Union requires not just reactions to existing threats, but the shaping of its own environment—through foresight, prevention, and strategic leadership. This is a challenge that the EU has so far only partially addressed, particularly given the limits in accessing intelligence, defence technologies, and the joint planning of operations and missions (Håkansson, 2023; Varma, 2024).

Despite these limitations, it cannot be overlooked that the war in Ukraine has significantly accelerated the EU's geopolitical maturation process, which had long been hindered by a normative ethos, internal fragmentation, and institutional vagueness in foreign and security policy. This development is not merely evident at the rhetorical level but also in concrete policy and strategic documents and initiatives concerning the defence industry, digital sovereignty, and energy security (European Commission, 2022; EEAS, 2022). Furthermore, the growing consensus on the need to increase defence spending across the Union and the revision of priorities within the EU's Multiannual Financial Framework signal a new awareness of the connection between security, economic sovereignty, and technological development (Müftüler-Bac et al., 2024).

This geopolitical maturation is accompanied by the gradual integration of traditionally separate sectoral policies—such as climate transition, energy policy, the digital agenda, and trade diplomacy—with the logic of strategic competition and security imperatives (Belan, 2023; Tvaronavičienė, 2024; Kavan et al., 2025; Okunevičiūtė Neverauskienė et al., 2025; Dušek, 2025). This "geopoliticisation" of policies, which was perceived as incongruous or even contradictory to the EU's core values only a few years ago, now represents a fundamental prerequisite for the Union to operate effectively in a multipolar and values-fragmented world (Adriaensen et al., 2025). An integrated approach, in which the security, economic, and technological dimensions are viewed as inseparable components of overall strategic capacity, is becoming a necessity. Without this linkage, the EU will be unable to face global challenges that extend beyond the scope of conventional military threats and include the areas of artificial intelligence, energy vulnerability, global supply chains, and informational sovereignty (Csernatori, 2022; Balfour et al., 2024).

The EU's geopolitical transformation following the Russian invasion of Ukraine, therefore, does not merely represent a series of reactive measures in response to an external shock, but can be understood as a profound and gradual process of redefining the Union's strategic identity. This redefinition is taking place on multiple levels: at the normative level (e.g., the revision of foreign policy and enlargement objectives), within the institutional framework (e.g., the development of mechanisms for strategic coordination and collective planning), and in the practical execution of policies (e.g., strengthening defence capabilities and reaction capacities) (Ivančík & Andrassy, 2025). The dynamism of this process is shaped not only by external security pressures but also by internal factors—such as the political preferences of member states, the state of public opinion, the readiness of institutions, and pressure from civil society.

This constitutes one of the most significant qualitative shifts in the history of European integration since the end of the Cold War, reopening the question of the future nature of the European project—whether it will remain primarily normative, or if it will become a fully-fledged geopolitical actor capable of exercising both hard and soft power in line with its strategic goals. In this context, it will be crucial whether the Union manages to consolidate itself as a coherent, proactive, and resilient security actor capable not only of responding to crises but also of shaping the international environment through a strategic vision, value consistency, and the ability to build reliable partnerships (Jurčák & Ivančík, 2023; Riddervold & Rieker 2024; Müftüler-Bac et al., 2024). This objective, however, remains contingent not only on the strength of its external action but, crucially, on its internal capacity to overcome fragmentation, strengthen solidarity, and achieve strategic foresight in an environment of increasing global uncertainty.

3. Strategic Autonomy in EU Security and Defence Policy: Progress and Contradictions

The concept of Strategic Autonomy (SA) has, over the past decade, become one of the most frequently used yet most highly debated topics in the discourse of European security and defence policy (Fiott, 2018; Biscop, 2022; Miró, 2023; Ivančík & Andrassy, 2025). From its original focus on defence capacity independence, the term has expanded to encompass a wider understanding of the EU's geopolitical, technological, and economic sovereignty, reflecting the growing complexity of threats and the pressure to reduce dependencies in critical areas (Csernatori, 2022). Strategic Autonomy gained new urgency particularly after the outbreak of the war in Ukraine, which exposed not only the reliance of many member states on the American security umbrella but also vulnerability in supply chains, energy, arms manufacturing, and strategic decision-making capacities (Biscop, 2022; Riddervold & Rieker, 2024; Balfour et al., 2024).

Under the influence of these events, EU initiatives aimed at strengthening defence capabilities and capacities and reducing reliance on external actors have been accelerated. Central to this effort is the development of instruments such as PESCO (Permanent Structured Cooperation), the EDF (European Defence Fund), the CARD (Coordinated Annual Review on Defence), and the EPF (European Peace Facility), which constitute the pillar of the EU's defence reinforcement strategy (Ivančík & Andrassy, 2025). Their objective is to support the joint development of defence technologies, streamline investment, eliminate duplication, and create the conditions for collective capacity for action. Despite the progress, however, the implementation of these mechanisms remains selective, slow, and uneven, lacking sufficient impetus for coordination among member states.

PESCO, established in 2017, originally aimed to be an instrument for deeper defence integration, yet current projects are characterised by significant variability in objectives, pace of realisation, and qualitative standard. The EDF, launched in 2021, offers funding for military technology research and development but faces challenges regarding absorption capacity, technological compatibility, and industrial integration. CARD, as a coordination tool, has the potential to improve synergy between national plans, but its effectiveness depends on the political will of member states to share sensitive information and adopt common decisions. All these instruments,

therefore, constitute necessary but currently underutilised components in building the EU's autonomous capacities.

The Strategic Compass for Security and Defence, adopted in March 2022 in response to the rapidly changing security environment and the war in Ukraine, holds a specific position in this process. The document defines concrete goals at the level of capabilities, resilience, partnerships, and the readiness to act. It includes a commitment to create an EU Rapid Deployment Capacity by 2025, as well as to increase defence investment and the ability to counter hybrid, cyber, and space threats (EEAS 2022; Borrell, 2024). Despite these ambitions, some authors warn that the Strategic Compass largely remains a declaratory framework without executive guarantees for its fulfilment (Biscop, 2022; Maurer et al., 2024).

A fundamental problem remains the tension between Strategic Autonomy and transatlantic commitments. Several member states, particularly those in Eastern and Northern Europe, view NATO as the key framework for their security and remain sceptical of any initiatives that could lead to a weakening of the transatlantic link (Michaels & Sus 2024). This position contrasts with the demands of other states and European institutional representatives who see SA as a necessary precondition for the EU's sovereignty and its capacity to act where NATO is not present or willing to intervene. The result is an ambivalent stance, where the EU declaratively commits to autonomy but remains practically dependent on the military-technological capacities of the United States, intelligence support, and NATO's operational command.

The contradictions surrounding the efforts to strengthen Strategic Autonomy reflect a deeper political and ideological divergence among EU member states. Some governments, particularly in Central and Eastern Europe, perceive Strategic Autonomy as a potential weakening of the transatlantic link and fear it might undermine the coherence of NATO as the primary guarantor of collective defence. Other states, notably France, but increasingly also Germany and Italy, emphasise the need for an independent European capacity pillar capable of ensuring defence even in the event of weakened US commitments (Howorth, 2019; Rieker & Giske, 2024). This dichotomy is not new, but the war in Ukraine has added a new dimension—while it strengthened confidence in NATO on the one hand, it exposed Europe's strategic vulnerability in the event of a change in American security priorities on the other (Fiott, 2023).

Another dimension of tension lies in the differing perceptions of the degree and nature of European sovereignty. While the concept of "Open Strategic Autonomy," favoured by the European Commission, emphasises the interconnectedness of autonomy with cooperation and global trade, some member states prefer an approach based on "self-sufficiency" in key strategic areas (Miró, 2023). This difference is evident, for instance, in the defence industry, where tension persists between supporting national champions and the need to build a European industrial base through cross-border projects supported by the EDF. Consequently, the defence industry remains one of the most fragmented areas of Common Defence Policy, with considerable capacity overlap, varying levels of interoperability, and a limited volume of joint development programmes (Fiott, 2023; Sabatino, 2024).

Moreover, the hybrid nature of contemporary threats demands autonomy not only in the conventional domain but also in the digital, space, and cyber domains. In this context, there is increasing discussion about the necessity of so-called technological sovereignty, which would allow the EU to reduce dependence on American or Chinese platforms, technologies, and infrastructures (Calcara et al., 2025). Despite several initiatives, such as cyber defence exercises, the development of cyber rapid response teams, and European satellite programmes, technological autonomy remains more of an ambition than a reality. Critics point out that without strategic investment in research and development, streamlining public procurement, and removing barriers to innovation, the EU will continue to rely on external technology providers, which weakens both its Strategic Autonomy and its geopolitical position (Jurčák & Ivančík, 2023; Fiott 2023; Michaels & Sus, 2024; Calcara et al., 2025; Scazzieri, 2025).

The war in Ukraine has simultaneously contributed to a fundamental revision of several EU member states' attitudes towards common security and defence initiatives. While prior to 2022, progress in defence integration was hampered by political concerns over the erosion of sovereignty, domestic political limits, or a lack of strategic consensus, the unprecedented nature of Russian aggression created new security imperatives that spurred a shift in the mindset and political behaviour of several states.

In this context, it must be highlighted that the increase in defence budgets—though important—is not in itself a guarantee of Strategic Autonomy. The crucial factor is the extent to which these investments are coordinated at the Union level, directed towards synergistic areas of research and development, and subordinated to a common strategy for defence industrial development. Initiatives such as the Joint Procurement Task Force, established after the outbreak of the war to coordinate the purchase of ammunition and equipment, are steps in the right direction. However, they are currently encountering the residue of national protectionism, diverse defence doctrines, and concerns over weakening control of key capabilities (EEAS, 2023; Scazzieri, 2025).

The coordination of weapons deliveries to Ukraine via the European Peace Facility (EPF) is a practical example of the EU's ability to flexibly utilise innovative mechanisms to secure military support. Yet, it also raises the question of the limits of sustainability and replenishability of these capacities in the event of a prolonged conflict. The creation of common stockpile funds, the support for interoperable platforms, and the linking of military and civil capabilities within the EU's hybrid defence framework are key elements that must be developed to forge long-term Strategic Autonomy.

Despite these positive trends, a core challenge remains ensuring that the current changes are not merely reactive responses to the immediate security crisis but become part of a systematic and sustainable strategic shift. Without deeper institutional integration, long-term planning, and the creation of political consensus on key security priorities, there is a risk that following the abatement of the acute threat, there will be a return to the inaction, discontinuities, and investment deficit that have long undermined the EU's defence potential (Fiott, 2018; Biscop, 2022).

In conclusion, Strategic Autonomy for the European Union has become a conceptually and politically indispensable response to the turbulent evolution of the global and regional security environment in the 21st century. However, its practical realisation continues to face several constraints, including the differing perception of threats among member states, the fragmentation of the defence industry, the absence of a unified strategic framework, and the lingering uncertainty regarding the future evolution of transatlantic relations.

Ultimately, the EU's Strategic Autonomy will depend not only on technical and material capabilities but, most importantly, on the ability to politically articulate common interests, strategically anticipate, and act collectively. If the Union manages to transform its security culture, decision-making processes, and approach to burden-sharing, it can become a fully-fledged, autonomous, and responsible security actor capable of shaping its geopolitical space in line with democratic values and its own strategic goals.

4. Institutional and Domestic Political Challenges to EU Security Policy

Despite the shift in political ambition and the declared desire for Strategic Autonomy, the practical realisation of the EU's Common Security Policy remains largely conditioned by the internal institutional framework and the political dynamics between member states. Strategic Autonomy is not just a matter of military capabilities or technologies; it is fundamentally about the capacity to take decisions that are fast, legitimate, and consensual. Therefore, it is essential to analyse the extent to which the current institutional architecture, decision-making rules, and domestic political factors influence the efficiency, effectiveness, expediency, and coherence of the Union's security policy.

One of the main factors limiting the European Union's capacity to act as an effective security actor is the persistent complexity and fragmentation of its institutional and domestic political framework. Unlike federal states that possess centralised decision-making in security and defence, the EU treats this area as one belonging to the sphere of intergovernmental cooperation, requiring a high degree of consensus among member states. This institutional design, enshrined in the Treaty on European Union (Articles 42–46 (EU, 2012)), has long constrained the efficiency of decision-making processes and created an asymmetry between the Union's ambitions and its ability to act effectively, efficiently, and flexibly.

Decision-making within the Common Foreign and Security Policy (CFSP) and the Common Security and Defence Policy (CSDP) still relies on the principle of unanimity in the Council of the EU, which practically means that every member state has a *de facto* veto right. While in other Union policies, Qualified Majority Voting (QMV) is the common decision-making mechanism, consensus is preferred in the case of security and defence. This frequently leads to paralysis or the significant watering-down of resulting decisions (Borrell, 2024). This situation is further complicated by the growing political heterogeneity among member states, where diverse strategic cultures, national interests, geopolitical orientations, and levels of defence capacity fundamentally influence their willingness to participate in common commitments (Dutardre, 2024).

Domestic political factors play a crucial role: several states have historically used their position to block consensual statements or political actions by the EU that they deemed contrary to their national interests. Furthermore, there is strong residual nationalism in defence, manifesting in fears of transferring competences to the supranational level, particularly concerning the control of armed forces, the selection of operational priorities, or budgetary decisions (Kirpsza, 2023; Högenauer & Mišík, 2024). Consequently, the political will to act jointly often concentrates only during a moment of immediate crisis and rapidly dissipates after its resolution, undermining the sustainability and continuity of strategic initiatives.

Among the weaknesses of the institutional framework is the absence of a unified strategic command and planning for EU operations and missions. Despite the establishment of the Military Planning and Conduct Capability (MPCC) in 2017, its mandate, capabilities, and capacity remain limited—especially compared to NATO's integrated structures. Coordination between civil and military components within the CSDP is often *ad hoc*, lacking systematic integration and long-term planning synergy. Simultaneously, the problem of redundancy persists among various agencies and institutions whose mandates partially overlap, leading to the inefficient use of resources and delays in decision-making.

Although the role of the High Representative of the Union for Foreign Affairs and Security Policy has been strengthened in recent years, this position still faces considerable limitations, as it lacks its own mandate to act independently of member states. The High Representative is largely bound by the political mandate of the Council and can only mediate agreement between member states—making their authority dependent on the political dynamics within the Council and the European Parliament. Moreover, given the absence of a unified European strategic culture, there is no common perspective on the objective of the CFSP/CSDP—whether it should be primarily normative, focused on crisis management, or geopolitically oriented towards power balancing.

The effectiveness of the Common Foreign, Security, and Defence Policy is also restricted by occasional friction between EU institutional actors, particularly between the European Parliament, the European Council, and the European Commission (Demke et al., 2020). Although the European Parliament has only limited competences in the area of CFSP/CSDP, it plays an increasingly important role in political oversight, strategic reflection, and the budgetary framework. In recent years, Parliamentary Committees for Foreign Affairs and Security have sought to strengthen transparency in decision-making regarding civilian missions and defence investments, highlighting the need for democratic legitimacy in an area traditionally dominated by executive power (Csernatoni & Lațici, 2020).

Conversely, the absence of direct legislative competence in the CFSP/CSDP leads to a situation where a "democratic deficit" exists—decisions taken in the Council, often under considerable time pressure and without broader public debate, may not reflect complex deliberation or the legitimate preferences of EU citizens (Rubbens, 2024). This problem gains particular significance in the current geopolitical context, where the EU is expected to demonstrate not only strategic effectiveness but also normative consistency and transparency towards the public. Without ensuring these, there is a risk of weakening trust in common defence policies and their perception as technocratic or elitist projects.

An important dimension of the domestic political challenges is the uneven ability of member states to mobilise public and political support for the EU's strategic initiatives. While some states have stable parliamentary majorities and long-term strategies supporting the CFSP/CSDP, others are characterised by volatile political configurations, internal political disputes, and Euroscepticism, which significantly limits the room for manoeuvre for governments at the Council level (Varma, 2024; Maurer et al., 2024). Furthermore, the issue of capacity imbalance arises—smaller member states, in particular, have limited diplomatic, military, and administrative capacities, placing them in an asymmetric position concerning co-decision-making and the implementation of complex security projects.

One of the discussed solutions to these limitations is the move from unanimity to Qualified Majority Voting (QMV) in certain aspects of security policy. The European Commission, as well as several analysts, has repeatedly recommended extending QMV to areas such as sanctions, civilian missions, or certain types of military cooperation—which would increase the EU's flexibility and speed of response in crisis situations (Navarra & Jančová, 2023). However, the transition to QMV in CFSP/CSDP requires the unanimous consent of member states under the 'passerelle clause' of Article 31(3) TEU, which practically means that the path to changing the mechanism is blocked by those interested in preserving the *status quo*.

An alternative is flexible integration or so-called "coalitions of the willing, which allow a group of member states to progress in certain areas without the need for the involvement of all (Genini, 2025; Dimitrova et al., 2025). Examples from PESCO and EDF defence projects show that such an approach can lead to pragmatic progress in areas where full consensus is unrealistic. Yet, there is also the risk of fragmentation and a two-speed Europe, where some states remain at the periphery of strategic initiatives and their security interests are not fully reflected. It can be concluded that the institutional and domestic political challenges represent a fundamental and long-standing limitation to the development of the European Union's security policy. Despite the fact that since the beginning of the 21st century, the EU has invested in building a complex institutional architecture for security policy—including the establishment of the European External Action Service (EEAS), the strengthening of the High Representative's position, and the introduction of tools like PESCO, CARD, EDF, and EPF—its ability to act as a strategically coherent and timely security actor is still constrained by internal contradictions, the complex distribution of powers, and the lack of political unity among member states (Håkansson, 2023; Riddervold & Rieker, 2024).

The level of CFSP/CSDP effectiveness is therefore conditioned not only by the legal and institutional framework but, crucially, by the political will to overcome national egoisms, deepen strategic trust, and create mechanisms for genuine collective responsibility. In practice, this means not only removing the blockages caused by unanimity but also fostering a culture of timely coordination, anticipatory strategic planning, and the effective utilisation of existing instruments and agencies (Michaels & Sus 2024; Maurer et al., 2024). Equally important is ensuring continuity and institutional memory, so that security policy does not become exclusively reactive but acquires a proactive and long-term dimension corresponding to the specifics of a multipolar and crisis-saturated world.

The future of security and defence policy will depend on whether the EU succeeds in finding a functional balance between two seemingly contradictory principles: on the one hand, the need for swift and flexible strategic capacity for action, and on the other, the commitment to legitimacy, inclusiveness, and democratic control. An excessive focus on effectiveness may undermine public political support and raise concerns about the democratic deficit, while over-reliance on formal procedures without the capacity to act could lead to a loss of credibility in the eyes of partners and rivals.

It will therefore be crucial for the EU to make a strategic decision on which areas of security and defence policy can and should be subject to deeper integration and common decision-making, while simultaneously identifying areas where it is appropriate to preserve room for flexibility and diversity. In this respect, existing mechanisms of differentiated integration can be inspirational, allowing a group of states to move forward without jeopardising the unity of the EU as a whole. Such an approach may represent a realistic way to overcome political barriers while respecting diversity within the Union.

If the EU is to be perceived as a credible security actor on a global scale, it must transform its internal dynamics to become not only a space of values but also a space of strategic capabilities and capacity. The foundation of this transformation lies in the reform of decision-making processes, the cultivation of political responsibility, and the strengthening of the participation of democratic institutions, which can ensure lasting legitimacy and public support for the Common Foreign, Security, and Defence Policy. Only then will the EU be capable of facing the challenges of the 21st century as a unified, confident, effective, and respected geopolitical actor.

Conclusion

The war in Ukraine represents a fundamental watershed moment in modern European history, which has accelerated several pre-existing trends while simultaneously exposing new challenges and weaknesses in the EU's approach to security, defence, geopolitics, and strategic action. From a comprehensive analytical perspective, it can be stated that the EU's response to Russian aggression against Ukraine was not merely reactive but, in many respects, transformed the fundamental principles of its strategic behaviour. The Union has shifted from normative caution to a more ambitious geopolitical stance, relying on a broader spectrum of tools—from sanctions and military aid to Ukraine to the redefinition of security and defence objectives within the Strategic Compass.

The analysis of the geopolitical transformation showed that while the EU still faces significant capacity and political limits, the war in Ukraine has forced it towards greater coherence, coordination, and political activation. The principle of "Zeitenwende" denotes not just a shift in German policy but a broader paradigmatic change within the entire EU—towards enhanced strategic literacy, the ability to respond to military challenges, and more active international engagement. The result is a redefinition of the Union's strategic identity as a political actor that must simultaneously confront security threats, preserve its value base, and maintain unity among diversely oriented member states.

Regarding Strategic Autonomy, it is clear that this concept can no longer be seen as an academic or ideological dilemma—it is a practical necessity related to increasing uncertainty in the global and regional environment, the potential decline of US commitment to ensuring European security and defence and deepening multipolar rivalry. Nevertheless, the implementation of autonomy in practice is proven to be significantly constrained—the fragmentation of the defence industry, the political heterogeneity of member states, and the absence of strong institutional mechanisms impede tangible progress. The challenge remains to build not only technological and military autonomy but also a common strategic culture that would enable the convergence of security and defence priorities among all member states.

The research findings confirm that domestic political and institutional barriers play a critical role in the (in)effectiveness of European security policy. The principle of unanimity in decision-making, the asymmetry of capabilities and capacities among member states, and the weak position of the European Parliament in CFSP/CSDP matters significantly limit the Union's ability to act strategically, timely, and with legitimate public support. Reform proposals such as the extension of Qualified Majority Voting (QMV) or the strengthening of the "coalitions of the willing" model represent potential ways forward, yet their realisation encounters political unwillingness and divergent national preferences.

Finally, the analysis of the global dimension of EU security policy demonstrated that the multipolar environment with intensified great power rivalry places new demands on the EU in the areas of strategic communication, building credible partnerships, and projecting normative influence. Partnerships with the US, NATO, and other countries/organisations are declared but are often limited in practice by a lack of cohesive policy and capacity. Nevertheless, they constitute important pillars of the EU's global presence, which must be further professionalised, deepened, and adapted to the challenges of the 21st century.

Current developments in European security policy show that the Union faces not only pragmatic challenges in security, defence, and geopolitical action but also fundamental normative questions about the nature of its identity, values, and responsibility within the international system. The war in Ukraine has revealed that the EU can no longer act solely as a civilian power built upon economic influence and multilateral instruments but must redefine its role as a geopolitical actor with the will to enforce its values through hard power and coercive instruments when the situation demands.

However, this transformation must not lead to a loss of the EU's identity as a normative actor. It is precisely the ability to combine power instruments with a value framework—based on democracy, the rule of law, and human rights—that represents the uniqueness of the European security model. The Union's normative credibility in the coming period will depend on how it approaches complex dilemmas: for example, in the export of arms to risky regions, the support of states with authoritarian elements, or in the reaction to disinformation campaigns that test the boundaries between freedom of expression and the protection of the democratic order.

From a political perspective, it is imperative that the EU becomes not just a reactive but a proactive actor capable of shaping its strategic environment. This requires the creation of an effective and efficient early warning system, the strengthening of analytical capacities at the strategic level (e.g., within the EEAS), and the ability to swiftly take decisions based on a comprehensive situational picture. Political cohesion among member states must simultaneously be supported by public legitimacy and an inclusive strategic discourse, as only then can a lasting consensus on the area of ensuring European security and defence be forged.

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E-SERVICE QUALITY AND ITS INFLUENCE ON CUSTOMER PERCEIVED VALUE**Lucas Vukethwele ^{1*}, Siphenthi Fihla ², Richard Chinomona ³**^{*1,2,3} *Department of Economics and Financial Science, Walter Sisulu University, South Africa*^{1*,2,3} *SEEDS, Department of Economics and Financial Science, Walter Sisulu University, South Africa*E-mails: ^{*1}vukethwele@wsu.ac.za (Corresponding author); ²sfihla@wsu.ac.za; ³rchinomona@wsu.ac.za*Received 11 August 2025; accepted 21 January 2026; published 30 March 2026*

Abstract. Research on online shopping behaviour has grown significantly; however, limited attention has been given to how privacy and security, fulfilment, website design, and overall e-service quality influence consumer outcomes such as word-of-mouth and perceived value, particularly in emerging markets. This study addresses this gap by examining the relative influence of these antecedents on online shopping behaviour within the South African context. Using a structured survey, data were collected from 116 consumers at Walter Sisulu University in the Eastern Cape Province, South Africa. Five hypotheses were proposed to assess the relationships among the identified antecedents, word-of-mouth, and perceived value in shaping online shopping behaviour. The empirical analysis supported four hypotheses, while one was rejected. The findings suggest that online shopping behaviour in this context is significantly influenced by website design, fulfilment, overall e-service quality, and resulting loyalty outcomes. At the same time, privacy and security have a limited direct impact. These results provide cautious yet meaningful evidence that consumer online shopping behaviour in Africa—an under-researched context—can be explained through both functional and relational factors. The study contributes to the broader discourse on digital consumer behaviour by offering theoretical and practical insights for enhancing online retail strategies in South Africa.

Keywords: sense experience; think experience; feel experience; act experience; relate experience; customer e-satisfaction; customer happiness; Walter Sisulu University (WSU) Butterworth Campus; South Africa

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JEL Classifications: L29

1. Introduction

Globalisation and rapid technological advancement have transformed the way societies, economies, and businesses operate. Digitalisation has reshaped consumer behaviour and organisational strategies, enabling new forms of interaction, commerce, and value creation (Kumar et al., 2024; Čirčová et al., 2025). The Internet has become the foundation for this transformation, facilitating communication, information exchange, and the emergence of electronic commerce (e-commerce) as a dominant channel for transactions worldwide (Marcucci et al., 2021; Martínez-Peláez et al., 2023; Španková & Sochuľáková, 2025).

E-commerce has created unprecedented opportunities for consumers by providing greater convenience, wider product choices, competitive pricing, and access to peer reviews. These advantages have accelerated its global adoption, with online sales now contributing substantially to retail markets in both developed and emerging economies (Singh, Sharma & Pandey, 2025). Within this digital environment, the quality of e-services has become a critical determinant of customer satisfaction, loyalty, and business performance. Research increasingly

emphasises factors such as privacy and security, fulfilment, website design, word-of-mouth, and customer perceived value as key predictors of e-service quality (AlSokkar et al., 2025).

Despite the growing body of scholarship, gaps remain in understanding how these predictors influence consumer behaviour in under-researched contexts, particularly in Africa. While international studies in Asia, the Middle East, and Europe have examined these relationships (Rahman Alam & Afzal, 2025; Ivančík, Nečas & Il'áščíková, 2024), limited empirical evidence is available from South Africa. This gap is especially pronounced in the Eastern Cape Province, where universities and businesses alike are increasingly reliant on digital services to engage students and consumers (Mpinganjira, Dlodlo & Idemudia, 2024).

This study seeks to address this gap by investigating the predictors of overall e-service quality and their influence on word-of-mouth and customer perceived value at Walter Sisulu University's (WSU) Butterworth Campus. By examining privacy and security, fulfilment, website design, and perceived value, this research aims to provide a deeper understanding of the drivers of online service quality in a South African higher education setting.

The contribution of this study is twofold. Theoretically, it enriches the literature on e-service quality by providing empirical evidence from an African context, thereby extending knowledge beyond the more frequently studied regions of Asia and Europe. Practically, the findings will assist university management and other stakeholders in enhancing digital service delivery, improving student and consumer experiences, and fostering stronger loyalty outcomes. In doing so, the study responds to calls for more context-specific research on e-commerce adoption and its implications in emerging markets.

2. Theoretical Grounding

The theoretical grounding section presents the theoretical frameworks that guide this research: the Social Exchange Theory (SET) and the Technology Acceptance Model (TAM). SET offers valuable insights into the exchange dynamics of social interactions and relationships, while TAM provides a robust framework for understanding the acceptance and adoption of technology by individuals. These theories collectively inform the conceptualisation of research problems and the formulation of hypotheses.

Social Exchange Theory

The Social Exchange Theory was developed by the sociologist George Homans in the 1950s and later elaborated upon by other theorists, such as Peter Blau and Richard Emerson. This study has adopted Social Exchange Theory to explain the nature of customer e-satisfaction and customer happiness in online shopping. Social Exchange Theory (SET) originates in behavioural psychology. Social exchange theory contends that a basic motivation for interaction is the seeking of rewards and avoidance of punishments (Emerson, 1976). As such, Social Exchange Theory argues that the rewards of interaction minus the penalties determine attitudes and behaviours. This implies that rewarding customers for a specific positive action leads to higher overall e-service quality and customer-perceived value.

Rajâa & Mekkaoui (2025) elaborate that social exchange theory is a cornerstone in understanding human interactions and relationships, rooted in the premise that individuals engage in social relationships to maximise rewards and minimise costs. At its core, the theory posits that people weigh the benefits and drawbacks of a relationship, and their decisions are guided by the perceived value of the outcomes they receive from it. Central to this theory is the concept of reciprocity—individuals aim to maintain a balance between what they invest in a relationship and what they gain from it. This exchange process occurs within various social contexts, ranging from intimate relationships to professional interactions.

In intimate relationships, social exchange theory suggests that individuals evaluate the rewards and costs associated with their partner's actions. Rewards may include love, companionship, and support, while costs might entail sacrifices, conflicts, or emotional distress. People assess whether the benefits of staying in the relationship outweigh its drawbacks, and adjust their behaviour accordingly. For instance, someone might invest more effort into a relationship if they perceive their partner's actions as highly rewarding, leading to a more profound commitment (Kim & Qu, 2020; Mirzaei & Esmaeilzadeh, 2021; Baćik et al., 2025).

Social exchange theory is highly relevant to this study because it explains customer satisfaction and happiness with online purchases. This theory posits that individuals engage in social interactions to maximise rewards and minimise costs. In the context of online shopping, this theory can be applied to the relationship between customers and online retailers. Social exchange theory emphasises the importance of trust in relationships. In the context of online shopping, customers rely on trust signals such as favourable reviews, brand reputation, secure payment methods, and transparent return policies. When customers trust the online retailer, they are more likely to engage in transactions with them, leading to higher satisfaction and happiness if the transaction meets or exceeds their expectations. Social exchange theory suggests that individuals feel an obligation to reciprocate when they receive benefits from others. In the context of online shopping, this can manifest in various forms such as discounts, loyalty rewards, personalised recommendations, and excellent customer service.

Technology Acceptance Model Theory

The Technology Acceptance Model was introduced by Fred Davis in 1986. The Technology Acceptance Model is one of the most important theories developed in the Management Information Systems (MIS) literature on technology acceptance and adaptation behaviour, and it explains individuals' behaviour in general, including whether they use technology. This model, developed to understand the acceptance of computer technology at work, is frequently used in online consumer behaviour research due to its simplicity and generality. The Technology Acceptance Model is explained by the perceived benefit and perceived ease of use variables.

TAM was developed in the 1980s, in response to concerns that workers were not using the ITs made available. Its originators reasoned that the key to increasing use was first to increase acceptance of IT, which could be assessed by asking individuals about their future intentions to use the IT. Knowing the factors that shape one's intentions would allow organisations to manipulate them to promote acceptance and thus increase IT use. Early TAM research found that only three factors were needed to explain, predict, and, presumably, control acceptance.

One notable criticism of the Technology Acceptance Model is its focus on intention as the primary determinant of technology adoption, often at the expense of actual behaviour. Critics argue that intention does not always translate into action, and numerous factors beyond intention influence whether individuals adopt and use technology. External pressures, system usability, and situational constraints may play significant roles in shaping behaviour but are not adequately accounted for in TAM.

The Technology Acceptance Model is relevant to this study, as it will assist e-business stores in developing effective strategies to attract customer attention and generate publicity. This study will provide marketers and managers with insight into the relationship between experiential marketing dimensions and customer e-satisfaction to achieve customer happiness in online purchases. The Technology Acceptance Model (TAM) is a widely used framework for understanding users' acceptance of technology, particularly in the context of information systems and software. It primarily focuses on two key factors: perceived usefulness and perceived ease of use. These factors influence users' attitudes towards adopting and using a particular technology. When applied to e-commerce and online purchases, TAM provides valuable insights into customer satisfaction and happiness.

Conceptual Model and Hypothesis Development

The model visually depicted the causal relationships between the predictor variables, the mediator variable, and the outcome variable. Hypotheses were formulated based on this conceptual framework to guide the empirical investigation of the relationships between the constructs. The conceptual model is provided below (Figure 1).

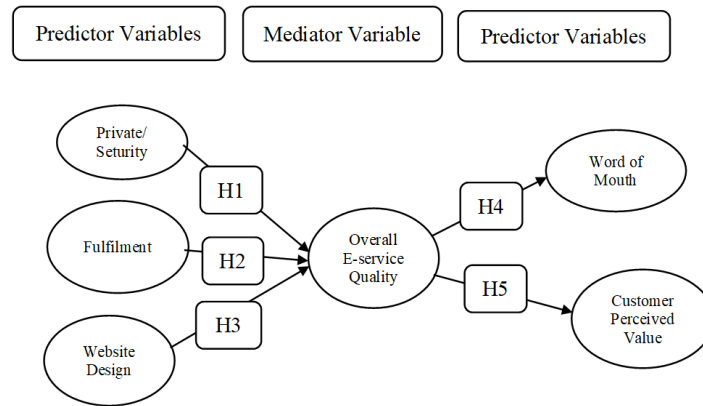


Figure 1. Conceptual model
Source: Developed by the researchers

H₁. Privacy/security has a positive association with overall e-service quality.

Privacy and security constitute essential components of e-service quality, profoundly impacting customer trust, satisfaction, and loyalty in digital transactions. Customers often share sensitive information, such as credit card numbers and addresses, when engaging in online commerce, making concerns about data misuse a critical factor that can diminish perceived service quality. According to Trust-Risk Theory, customers assess the risks involved in online transactions; stronger privacy and security measures reduce these perceived risks, thereby enhancing perceptions of service quality (Rathnaweera & Jayathilaka, 2025). Complementing this, the Technology Acceptance Model posits that users are more inclined to utilise platforms perceived as secure. Consequently, robust privacy and security are fundamental to elevating overall e-service quality. Therefore, the following hypothesis is proposed:

H₁. Privacy/security has a positive association with overall e-service quality.

Fulfilment and Overall E-Service Quality

Fulfilment pertains to the efficacy of the order delivery process, including accuracy, timeliness, and product condition, which plays a significant role in shaping e-service quality perceptions (Zhang et al., 2023; Maddah, Esmaeilzadeh & Mirzaei, 2024). Grounded in Expectancy-Disconfirmation Theory, service quality emerges from the gap between customer expectations and actual service performance. Accurate and timely deliveries lead to positive disconfirmation, resulting in higher evaluations of service quality. Fulfilment gains particular importance in online shopping contexts where product inspection before purchase is not possible, increasing the risk of post-purchase dissonance. Effective fulfilment contributes to customer satisfaction, trust, and repeat patronage. Hence, it can be hypothesised that:

H₂. Fulfilment has a positive association with overall e-service quality.

Website Design and Overall E-Service Quality

Website design encompasses aesthetics, navigation, usability, information quality, and personalisation, all of which significantly affect the customer's e-service experience and quality perception. A well-designed, visually

appealing, and intuitive website enhances usability and promotes favourable customer evaluations. Cognitive Load Theory highlights that effective design reduces customers' mental effort, streamlining decision-making and purchase behaviour (Chen, Xu & Arpan, 2017). Furthermore, responsive design, personalised content, and clear information foster trust and satisfaction, reinforcing the perceived quality of the e-service. Hence,

H₃. Website design has a positive association with overall e-service quality

Overall E-Service Quality and Word of Mouth

Word of Mouth (WOM) represents crucial informal communication that significantly influences potential customers' purchasing decisions (Singh, Sharma, & Pandey, 2025). Social Exchange Theory argues that positive customer experiences trigger reciprocal behaviours, such as sharing feedback with others. Higher overall e-service quality enhances satisfaction and trust, thus encouraging consumers to engage in electronic word-of-mouth (e-WOM) on social media and review sites. Positive WOM not only boosts brand reputation but also provides trustworthy recommendations that often surpass the effectiveness of traditional marketing. Therefore, it can be hypothesised that:

H₄. Overall, e-service quality has a positive association with Word of Mouth

Overall E-Service Quality and Customer Perceived Value

Customer-perceived value (CPV) reflects the trade-off between the benefits gained from a service and the costs incurred, including time and monetary expenditures. The Value-Based Theory of Marketing identifies service quality as a key determinant of CPV since superior service quality enhances the benefits perceived relative to the costs. Improvements in e-service quality dimensions—such as privacy/security, fulfilment, and website design—increase customers' overall utility and satisfaction, thereby elevating perceived value. CPV subsequently fosters loyalty, retention, and advocacy behaviours.

H₅. Overall, e-service quality has a positive association with customer perceived value.

3. Methodology

There are various methodologies to choose from, depending on the nature of the study. However, this study is quantitative. The research method is a general approach and technique used to conduct a research study on a particular topic of interest (Sovacool, Aksen & Sorrell, 2018; da Silva et al., 2024; Qu & Kim, 2025; Ehsani & Hosseini, 2025). Stol, Schaarschmidt, and Morgan (2024) suggest that the choice of method depends on whether it is qualitative, quantitative, or mixed. This study will employ a positivist paradigm to achieve the objectives. The epistemological approach is likely positivist among the three philosophical elements of research - epistemology, axiology, and ontology. Positivism is closely associated with the characteristics and logic of the quantitative method. The positivist paradigm is selected because it gives the researcher independence and objectivity. Additionally, positivism allows for an objective analysis of facts and the use of existing theories to formulate hypotheses. Moreover, variables can be investigated without the researcher's control or influence.

Data Collection Tool

The determining factor in the data collection tool the researcher uses is the variables this study aims to investigate. Given the study's objectives, a fully structured, self-administered questionnaire has been deemed the most suitable data collection tool. Primary data will be collected with the help of three assistants to speed up the process and ensure a positive response rate. The advantage of a questionnaire is that it reduces costs and guarantees anonymity (AlSaied & Alkhoraif, 2024).

Population and Sampling

According to Yuan et al. (2024), the population is crucial because it delineates the scope and boundaries of the study. In this study, the population comprises 165 customers who make online purchases. These individuals are drawn from the official websites of e-business stores, such as Facebook. The assumption underlying this population selection is that virtually everyone who makes online purchases will have a social media account, such as Facebook. Social media platforms like Facebook are widely utilised for various purposes, including connecting with brands and businesses, browsing products, and making purchases. Therefore, targeting customers who use online purchase platforms and are active on social media enables the researcher to access a sizable, relevant population for the study. By selecting this population, the researcher aims to capture a representative sample of individuals who are actively engaged in online purchasing, thereby ensuring the applicability and generalizability of the study's findings to the broader population of online shoppers.

The literature distinguishes between two main types of sampling methods: probability sampling and non-probability sampling. Probability sampling involves selecting samples from a large population using methods grounded in probability theory. This approach ensures that each member of the population has a known, non-zero chance of being selected into the sample. In this study, a simple random sampling method was adopted, a type of probability sampling. In simple random sampling, each member of the population has an equal chance of being selected for the sample. As described, simple random sampling is a probability sampling method in which the selection process is independent of individual characteristics, such as age, gender, employment status, or location. In this study, questionnaires were distributed to available and willing participants at Walter Sisulu University Butterworth Campus. This sampling approach was chosen for its practicality and ease of access to participants within the study's context.

Data Analysis

Accordingly, quantitative data were collected from 116 customers who purchased goods and services online using a questionnaire. Composite Reliability was employed to evaluate the measurement scale and confirm the instrument's internal consistency and reliability. According to Sovey, Osman, and Mohd-Matore (2022), if the composite reliability is greater than 0.6, the instruments are reliable. In this study, Smart PLS was used to compute composite reliability, and the results depict that all variables meet the acceptable threshold of 0.6. Hence, all the measurement instruments used in this study are deemed reliable.

Table 1. Reliability test results. Cronbach Alpha and Composite Reliability

	Cronbach's alpha	Composite reliability (rho_a)
Customer Perceived Value	0.880	0.886
Fulfilment	0.911	0.913
Overall E-Service Quality	0.924	0.925
Privacy Security	0.914	0.915
Website Design	0.908	0.911
Word of Mouth	0.918	0.918

Note: PS= Privacy Security; F= Fulfilment; WD= Website Design; OEQ= Overall E-service Quality; WOM= Word of Mouth, and CPV= Customer Perceived Value.

Table 1 presents Cronbach's alpha and composite reliability (rhoa) values for different constructs in a study. The reliability and validity of the measurement model were assessed to determine the adequacy of the constructs employed in the study. Both Cronbach's alpha (CA) and composite reliability (CR) were used to evaluate internal consistency. As recommended by Hair et al. (2019), Cronbach's alpha values above 0.70 and CR values exceeding 0.70 indicate acceptable reliability. In this study, all constructs demonstrated excellent reliability, with Cronbach's alpha ranging from 0.880 to 0.924 and CR (rho_a) ranging from 0.886 to 0.925. Specifically,

customer perceived value ($\alpha = 0.880$; $\rho_a = 0.886$), fulfilment ($\alpha = 0.911$; $\rho_a = 0.913$), overall e-service quality ($\alpha = 0.924$; $\rho_a = 0.925$), privacy/security ($\alpha = 0.914$; $\rho_a = 0.915$), website design ($\alpha = 0.908$; $\rho_a = 0.911$), and word of mouth ($\alpha = 0.918$; $\rho_a = 0.918$) all exceeded the recommended thresholds. These results confirm that the constructs are internally consistent, reliable, and free from measurement error.

Convergent validity was assessed using the Average Variance Extracted (AVE). According to Fornell and Larcker (1981), an AVE value greater than 0.50 is indicative of adequate convergence. In this study, AVE values ranged from 0.687 to 0.869, thereby exceeding the recommended cut-off. For instance, overall e-service quality reported an AVE of 0.869, while fulfilment and word of mouth achieved AVEs of 0.790 and 0.802, respectively. These results confirm that the indicators converge appropriately on their intended constructs.

Discriminant validity was evaluated using the Fornell–Larcker criterion. The square root of the AVE for each construct was higher than its correlations with other constructs, indicating that each latent variable is empirically distinct. For example, customer perceived value ($\sqrt{\text{AVE}} = 0.857$) was more strongly correlated with its own indicators than with fulfilment (0.633) or website design (0.688). Similarly, overall e-service quality ($\sqrt{\text{AVE}} = 0.932$) displayed stronger relationships with its measurement items than with any other construct. This demonstrates that the constructs measure different but related aspects of e-service quality and its outcomes.

In summary, the results of the reliability and validity assessments confirm that the measurement model is statistically robust. High Cronbach's alpha and composite reliability values indicate strong internal consistency, while the AVE and Fornell–Larcker results confirm both convergent and discriminant validity (Table 2). Therefore, the constructs of privacy/security, fulfilment, website design, overall e-service quality, word of mouth, and customer perceived value are considered reliable and valid for subsequent structural model testing.

Table 2. Validity test results. Average variance extracted.

	Cronbach's alpha	Composite reliability (ρ_a)	Composite reliability (ρ_c)	Average variance extracted (AVE)
CPV	0.880	0.886	0.917	0.735
F	0.911	0.913	0.938	0.790
OEQ	0.924	0.925	0.952	0.869
PS	0.914	0.915	0.933	0.700
WD	0.908	0.911	0.929	0.687
WOM	0.918	0.918	0.942	0.802

Note: PS= Privacy Security; F= Fulfillment; WD= Website Design; OEQ= Overall E-service Quality; WOM= Word of Mouth, and CPV= Customer Perceived Value.

The Average Variance Extracted (AVE) was employed to assess the convergent validity of the measurement model. According to Fornell and Larcker (1981), an AVE value of 0.50 or higher indicates that a latent construct explains more than half of the variance in its observed indicators. In this study, the AVE values ranged between 0.687 and 0.869, thus exceeding the recommended threshold and confirming adequate convergent validity across all constructs.

Among the constructs, overall e-service quality recorded the highest AVE (0.869), demonstrating exceptionally strong convergence and indicating that its measurement items consistently represent the underlying dimension. Similarly, word of mouth (0.802) and fulfilment (0.790) demonstrated high convergent validity, indicating that their indicators reliably capture the intended constructs. Customer perceived value (0.735) and privacy/security (0.700) also showed satisfactory convergence, with more than 70% of their items' variance explained by the respective latent variables. Website design, while yielding the lowest AVE (0.687), still exceeded the minimum

benchmark of 0.50, thereby confirming acceptable convergent validity, albeit at a relatively weaker level than the other constructs.

Compared with other constructs, overall e-service quality emerged as the most robust in terms of convergence, while website design was the least robust. The fact that all constructs achieved AVEs above the required cut-off indicates that the indicators meaningfully reflect their respective latent variables. Consequently, the measurement model demonstrates sound convergent validity and is appropriate for subsequent structural analysis.

Table 3. Scale accuracy analysis

Research constructs		Scale Items		Cronbach's Alpha value	Composite Reliability Values	Average Variance Extracted (AVE)	Factor Loadings
		Mean	SD				
PS	PS 1	3.250	1.129	0.914	0.915	0.700	0.794
	PS 2	3.310	1.054				0.820
	PS 3	3.319	1.055				0.811
	PS 4	3.112	1.244				0.874
	PS 5	3.138	1.238				0.850
	PS6	3.224	1.246				0.870
F	F1	3.267	1.078	0.911	0.913	0.790	0.864
	F2	3.405	1.189				0.887
	F3	3.569	1.169				0.913
	F4	3.586	1.115				0.890
WD	WD1	3.259	1.100	0.908	0.911	0.687	0.779
	WD2	3.397	0.999				0.846
	WD3	3.491	1.087				0.872
	WD4	3.440	1.077				0.855
	WD5	3.500	1.242				0.847
	WD6	3.664	1.098				0.768
OEQ	OEQ1	3.466	1.102	0.924	0.925	0.869	0.924
	OEQ2	3.595	0.974				0.946
	OEQ3	3.491	1.071				0.926
WOM	WOM1	3.629	1.063	0.918	0.918	0.802	0.884
	WOM2	3.612	1.007				0.931
	WOM3	3.638	1.045				0.881
	WOM4	3.552	1.037				0.887
CPV	CPV1	3.371	1.111	0.880	0.886	0.735	0.878
	CPV2	3.422	1.115				0.858
	CPV3	3.207	1.103				0.840
	CPV4	3.586	1.059				0.855

Note: PS= Privacy Security; F= Fulfillment; WD= Website Design; OEQ= Overall E-service Quality; WOM= Word of Mouth, and CPV= Customer Perceived Value.

The scale accuracy analysis (see Table 3 above) was conducted to assess the psychometric properties of the constructs used in this study. The evaluation included Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), factor loadings, and descriptive statistics (means and standard deviations). The results demonstrate strong evidence of reliability and validity, confirming the robustness of the measurement model.

Reliability and Internal Consistency

Cronbach's alpha values ranged from 0.880 (Customer Perceived Value) to 0.924 (Overall E-Service Quality), while composite reliability values ranged from 0.886 to 0.925. Both indices exceeded the minimum acceptable threshold of 0.70 (Hair et al., 2019), thereby confirming strong internal consistency across all constructs. This indicates that the measurement items are internally stable and consistently reflect their intended latent variables.

Convergent Validity

The AVE values for all constructs exceeded the recommended threshold of 0.50 (Fornell & Larcker, 1981), ranging from 0.687 (Website Design) to 0.869 (Overall E-Service Quality). These results confirm adequate convergent validity, as each construct explains more than half of the variance in its indicators. Overall E-Service Quality (0.869), Word of Mouth (0.802), and Fulfilment (0.790) demonstrated particularly high convergence, while Website Design, though lower at 0.687, still achieved an acceptable level of validity.

Factor Loadings

All measurement items loaded strongly onto their respective constructs, with loadings exceeding 0.70. The lowest loading (0.768 for WD6) still falls within an acceptable range, while the highest loading (0.946 for OEQ2) indicates excellent representation of Overall E-Service Quality. This consistency across items confirms that the indicators meaningfully contribute to their respective constructs.

Descriptive Statistics (Means and Standard Deviations)

The mean values for all items ranged between 3.112 and 3.664, suggesting that respondents tended to "slightly agree" with the measurement items on the five-point Likert scale. Word of Mouth achieved the highest mean ($M = 3.638$, $SD = 1.045$), indicating that respondents were most inclined to recommend or speak positively about the online service. Website Design also reported relatively strong mean scores ($M = 3.664$ for WD6), showing moderate agreement with the platform's usability and visual appeal. By contrast, Privacy/Security registered the lowest mean ($M = 3.112$ for PS4), implying weaker confidence among respondents regarding the protection of their personal data.

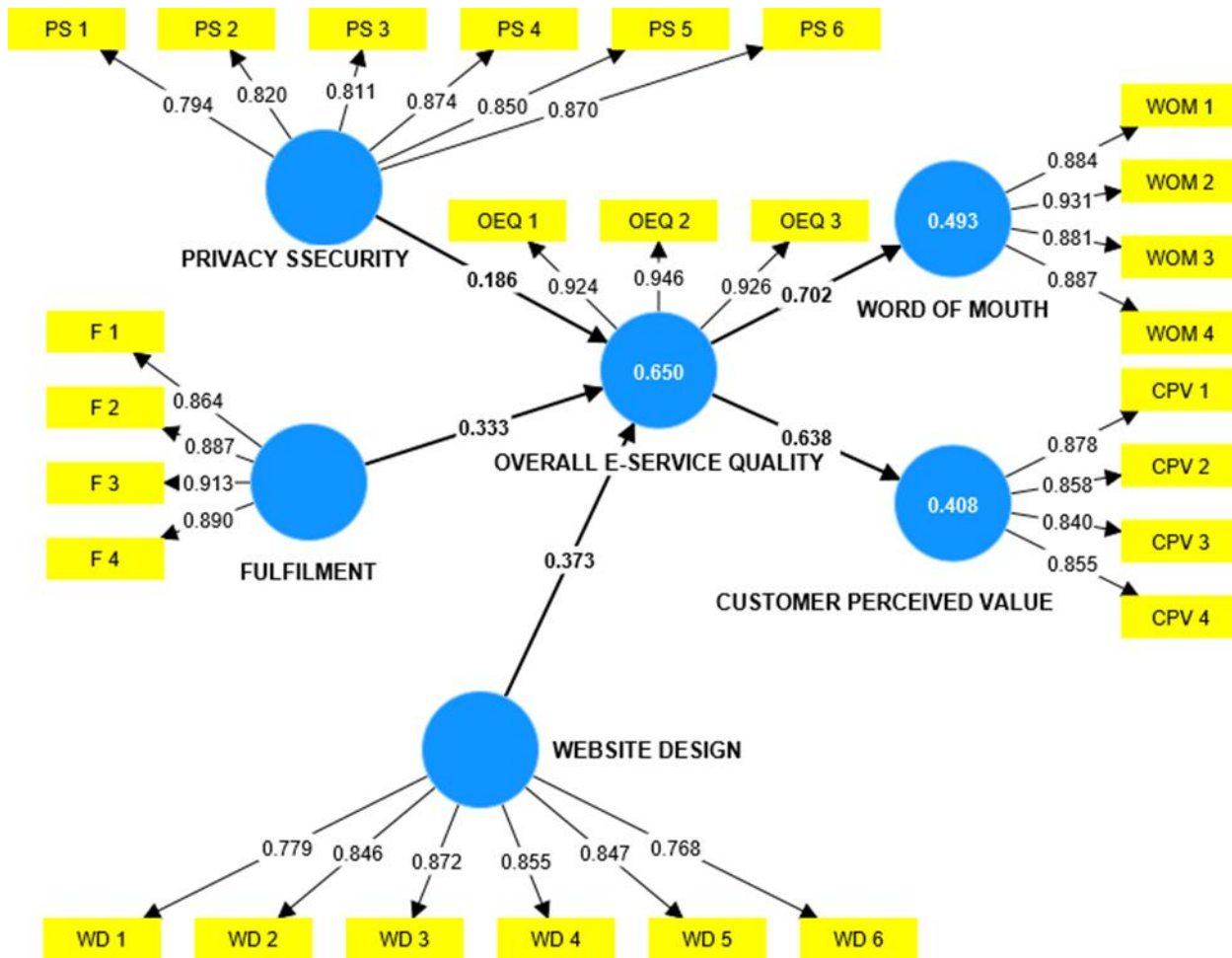
Standard deviations ranged from 0.974 (OEQ2) to 1.246 (PS6), showing moderate variability. The higher dispersion in Privacy/Security items reflects diverse views on whether respondents trusted the online shop to safeguard sensitive information, while the lower variation in Overall E-Service Quality items suggests more consensus on the satisfactory nature of the service quality.

Critical Insight and Implications

While the overall reliability and validity of the constructs are strong, the relatively lower mean scores for Privacy/Security suggest a potential concern. This finding indicates that respondents may not be fully confident in the safety of their transactions or in the protection of their personal information. From a managerial perspective, this represents a critical dimension that requires attention. Strengthening data protection mechanisms, improving transparency around security protocols, and communicating these assurances more effectively to users could enhance trust and, in turn, reinforce customer loyalty.

Overall Assessment

In summary, the scale accuracy analysis confirms that all constructs — Privacy/Security, Fulfilment, Website Design, Overall E-Service Quality, Word of Mouth, and Customer Perceived Value — demonstrate high reliability, strong convergent validity, and robust factor loadings. Descriptive results further show that respondents' perceptions were moderately positive overall, with the strongest support expressed for Word of Mouth and the weakest for Privacy/Security. The findings not only validate the measurement model but also provide important insights into areas requiring strategic improvement to strengthen customer experience in the online retail context (see Figure 2).

**Figure 2.** Structural Model

Note: PS= Privacy Security; F= Fulfillment; WD= Website Design; OEQ= Overall E-service Quality; WOM= Word of Mouth, and CPV= Customer Perceived Value.

The structural model assessment was conducted using Structural Equation Modelling (SEM) via path analysis to investigate the causal relationships among the study's latent variables. The model hypothesised that privacy and security, fulfilment, and website design significantly influence overall e-service quality, which, in turn, affects word of mouth and customer-perceived value. The analysis was performed using Smart PLS software with bootstrap resampling to test the statistical significance of the relationships. The key criteria for acceptance included a p-value of ≤ 0.05 and a t-statistic greater than 1.96.

The results revealed that four of the five hypothesised relationships were statistically significant, confirming the positive effects of fulfilment and website design on overall e-service quality, as well as the impact of overall e-service quality on word of mouth and customer perceived value. Specifically, fulfilment showed a path coefficient of 0.333 with a t-statistic of 3.060 ($p=0.002$), and website design had a path coefficient of 0.373 with a t-statistic of 3.158 ($p=0.002$), both indicating significant positive influences on overall e-service quality. Further, overall e-service quality exhibited a strong positive effect on word of mouth with a path coefficient of 0.702 and a t-statistic of 13.404 ($p=0.000$), and on customer perceived value with a path coefficient of 0.638 and a t-statistic of 11.494 ($p=0.000$).

Conversely, the relationship between privacy, security, and overall e-service quality, though positive, was not statistically significant. It had a path coefficient of 0.186 with a t-statistic of 1.752 and a p-value of 0.080, which falls short of the conventional 0.05 significance level. This suggests that while privacy and security may contribute to perceived e-service quality, their direct influence in this model is insufficient to be significant.

Overall, the strongest relationship identified in the model was between overall e-service quality and word of mouth, emphasising the critical role of perceived service quality in driving customer recommendations. The relatively weaker, yet significant, effects of fulfilment and website design on e-service quality suggest that these operational factors are important areas for online business improvement strategies to enhance customer experiences and loyalty. The study's findings contribute to the understanding of how different predictors influence e-service quality and its consequential effects in the context of online shopping at WSU Butterworth Campus. Similarly, to obtain and validate the directed dependencies among the variables, a Path Analysis was conducted as shown in Table 4 below.

Table 4. Path Analysis Results

Hypothesised relationship	Hypotheses	Path Co-efficient	T- statistics	P-value	Outcome
PS → OEQ	H1	0.186	1.752	0.080	Supported but Insignificant
F → OEQ	H2	0.333	3.060	0.002	Significant & supported
WD → OEQ	H3	0.373	3.158	0.002	Significant & supported
OEQ → WOM	H4	0.702	13.404	0.000	Significant & supported
OEQ → CPV	H5	0.638	11.494	0.000	Significant & supported

Note: PS= Privacy Security; F= Fulfillment; WD= Website Design; OEQ= Overall E-service Quality; WOM= Word of Mouth, and CPV= Customer Perceived Value.

The path coefficient results and their statistical significance provide a clear understanding of the hypothesised relationships within the structural model, which assesses predictors of overall e-service quality (OEQ) and their impact on word of mouth (WOM) and customer perceived value (CPV) at WSU Butterworth Campus. The analysis reveals that all path coefficients are positive, confirming that the independent variables positively influence the dependent variables. Notably, fulfilment (F) shows a moderate positive influence on OEQ with a path coefficient of 0.333, which is statistically significant ($t=3.060$, $p=0.002$). This suggests that improvements in fulfilment aspects, such as delivery timeliness and order accuracy, meaningfully enhance customers' perceptions of e-service quality. Similarly, website design (WD) exerts a somewhat stronger positive effect on OEQ, with a path coefficient of 0.373, also statistically significant ($t=3.158$, $p=0.002$), highlighting the critical role of website usability, aesthetics, navigation, and personalisation in shaping favourable assessments of the overall e-service experience.

Privacy security (PS) also shows a positive relationship with OEQ, with a path coefficient of 0.186, indicating that perceived privacy and security contribute to e-service quality. However, this influence is not statistically significant at the conventional 5% level ($t=1.752$, $p=0.080$), suggesting that while privacy and security are important, their direct effect on overall e-service quality is relatively weaker or less certain when controlling for other factors. This suggests that privacy security may play an indirect role within the broader service quality

framework or may require further investigation in future studies. Nonetheless, overall e-service quality strongly influences consumer loyalty and satisfaction outcomes.

The path coefficient for OEQ's effect on word of mouth (WOM) is remarkably high at 0.702, with extremely strong statistical significance ($t=13.404$, $p<0.001$), indicating that higher perceived quality of online services robustly motivates customers to make positive recommendations and endorsements, thereby significantly affecting consumer behaviour through peer communication. Likewise, OEQ has a substantial impact on customer perceived value (CPV), with a path coefficient of 0.638 ($t=11.494$, $p<0.001$), demonstrating that better overall service quality enhances customers' perceptions of value by weighing cost-benefit trade-offs. Collectively, these findings portray a model in which fulfilment and website design are key antecedents of e-service quality, which, in turn, is a pivotal mediator driving important loyalty outcomes—word of mouth and perceived customer value. This rigorous validation of the model's relationships offers valuable academic and managerial insights emphasising the importance of enhancing fulfilment and website design while maintaining robust service quality to foster positive word of mouth and perceived customer value in the online shopping context within the South African university setting.

4. Results

Results of Examining H1

Hypothesis 1 (H1) proposed that privacy/security has a positive association with overall e-service quality (OEQ). The structural equation modelling results revealed a path coefficient of 0.186, suggesting a weak positive effect. However, the relationship did not reach statistical significance, as the t-statistic was 1.752 and the p-value was 0.080, which is above the conventional 0.05 threshold.

This finding indicates that, within the WSU Butterworth Campus context, privacy and security measures do not exert a statistically significant influence on perceptions of overall e-service quality. Although respondents generally acknowledged the importance of secure transactions and data protection, these factors alone did not strongly shape their evaluations of e-service quality.

The non-significant relationship between privacy/security and overall e-service quality in this study contrasts with much of the existing literature, which often highlights security as a fundamental determinant of online service evaluations. Recent research, however, suggests that consumer perceptions of privacy and security may be context dependent (Keesal, Stathopoulou & Gadzinski, 2025). Users prioritise convenience, usability, and fulfilment over security assurances, particularly when interacting with familiar or trusted service providers. Perceived value in online transactions is increasingly shaped by efficiency and service reliability.

In the WSU Butterworth context, this result may reflect the institutional setting, where students and staff already assume a degree of trust in university-managed systems. Therefore, while privacy/security remains important, it has a limited incremental impact on perceptions of overall e-service quality compared to more functional factors such as fulfilment and website design. This suggests that institutions need to maintain strong security practices as a standard expectation, while focusing on enhancing usability and fulfilment to improve perceptions of service quality.

Results of Examining H2

Hypothesis 2 (H2) proposed that fulfilment has a positive association with overall e-service quality (OEQ). The structural equation modelling results strongly supported this hypothesis. The path coefficient from fulfilment to OEQ was 0.333, indicating a moderate positive effect. The relationship was statistically significant, with a t-statistic of 3.060 and a p-value of 0.002, which is well below the 0.05 significance threshold. This finding suggests that fulfilment, defined as timely delivery, accurate order fulfilment, and adherence to promised service

conditions, plays a pivotal role in shaping perceptions of e-service quality. Within the WSU Butterworth Campus context, when students and staff receive accurate and timely service delivery, their evaluation of overall e-service quality improves significantly.

The significant positive relationship between fulfilment and overall e-service quality observed in this study is consistent with recent research emphasising the critical role of fulfilment in shaping online service evaluations. Eryiğit and Fan (2021) contend that fulfilment, encompassing order accuracy, delivery timeliness, and adherence to promises, directly enhances customers' perceptions of service quality by reducing uncertainty and improving reliability. Similarly, Alnawas and Khateeb (2022) highlight that fulfilment is a cornerstone of e-service success, as it ensures that customer expectations are met, thereby fostering satisfaction and trust in digital platforms. More recently,

In the WSU Butterworth context, this finding suggests that students and staff place strong emphasis on whether promised services are delivered accurately and on time. Unlike privacy/security, which may be taken for granted, fulfilment directly impacts users' day-to-day experiences with institutional e-services. Thus, consistent and reliable fulfilment emerges as a critical driver of perceived service quality, supporting the broader argument that service delivery effectiveness underpins consumer trust and long-term engagement in online environments.

Results of Examining H3

Hypothesis 3 (H3) posited that website design is positively associated with overall e-service quality (OEQ). The results from the structural model provided strong support for this hypothesis. The path coefficient from website design to OEQ was 0.373, suggesting a moderate to strong positive effect. This relationship was statistically significant, with a t-statistic of 3.158 and a p-value of 0.002, which is below the 0.05 threshold.

These findings indicate that website design encompassing elements such as usability, navigation, visual appeal, and ease of completing transactions plays an important role in shaping perceptions of e-service quality. Within the WSU Butterworth Campus setting, respondents reported higher evaluations of service quality when the digital platforms they used were visually appealing, user-friendly, and well-structured, facilitating efficient service delivery.

The significant positive association between website design and overall e-service quality affirms the growing consensus in recent scholarship that digital interface design is a critical determinant of customer evaluations in online environments. Eryiğit and Fan (2021) argue that the usability, aesthetics, and ease of navigation of a website directly enhance perceived service quality, as these factors shape the efficiency and enjoyment of customer interactions. Likewise, Alnawas and Khateeb (2022) emphasise that visually appealing and functionally efficient websites create positive first impressions and sustained engagement, thereby strengthening perceptions of quality.

At WSU Butterworth Campus, this finding suggests that students and staff attach considerable importance to how institutional e-service platforms are designed and presented. Beyond functional delivery, respondents evaluated overall e-service quality based on whether platforms were easy to use, visually coherent, and responsive during interactions. This result reinforces the argument that website design is not merely an aesthetic concern but a strategic factor influencing perceptions of reliability and professionalism in digital services. Consequently, institutions seeking to enhance e-service quality must invest in user-centred design principles that combine visual appeal, navigational clarity, and functional reliability to meet rising consumer expectations in digital contexts.

Results of Examining H4

The finding that overall e-service quality exerts a strong and positive influence on word of mouth (WOM) aligns with prior studies that highlight the central role of service quality in driving customer advocacy behaviours. The significant path coefficient obtained in this study ($\beta = 0.702$, $p < 0.001$) reinforces these assertions, demonstrating that within the WSU Butterworth Campus, students and staff are likely to become informal promoters of e-services when they experience high service quality.

Results of Examining H5

Hypothesis 5 (H5) posited that overall e-service quality has a positive association with customer perceived value (CPV). The structural model results provided strong support for this hypothesis. The path coefficient linking overall e-service quality to CPV was 0.638, indicating a substantial positive effect. The relationship was statistically significant, as evidenced by a t-statistic of 11.494 and a p-value of 0.000, surpassing the conventional significance threshold of 0.05. This result demonstrates that when consumers perceive online services as efficient, reliable, and user-friendly, their evaluation of the benefits received relative to the costs incurred improves significantly. In the WSU Butterworth Campus context, higher e-service quality directly enhances students' and staff members' perception of value, suggesting that investment in digital service quality directly contributes to stronger consumer evaluations of fairness, benefits, and utility in online interactions.

The confirmation of H5 underscores the importance of overall e-service quality as a key driver of customer perceived value (CPV) in digital service environments. Recent studies have emphasised that consumers evaluate value not only in terms of price but also in terms of the quality of their online interactions. For example, Eryiğit and Fan (2021) argue that e-service quality dimensions such as responsiveness, usability, and reliability directly enhance perceived value by reducing transactional risks and improving customer experience. Similarly, Alnawas and Khateeb (2022) highlight that well-designed, high-performing digital services significantly improve consumers' perception of value by enhancing both functional and emotional benefits. More recently, Goutam, Ganguli, and Gopalakrishna (2022) demonstrated that, in online retailing, fulfilling service promises coupled with strong digital quality standards increases customer trust and, subsequently, perceived value.

The strong path coefficient observed in this study ($\beta = 0.638$, $p < 0.001$) confirms these findings in the South African academic context, illustrating that students and staff at WSU Butterworth Campus place a high premium on reliable and efficient e-services when evaluating value. This aligns with the argument that customer-perceived value is multidimensional and is significantly shaped by the service quality of online platforms. Therefore, this study provides empirical evidence that e-service quality serves as a critical lever for institutions to enhance perceptions of fairness, benefits, and satisfaction, ultimately strengthening long-term consumer relationships in the digital environment.

Conclusions

The present study offers critical insights into the determinants of e-service quality and their subsequent effects on customer perceived value (CPV) and word of mouth (WOM) within the online shopping environment of Walter Sisulu University (WSU) Butterworth Campus. By employing structural equation modelling, the analysis revealed that the predictors of e-service quality—fulfilment, website design, and privacy/security—exert differential impacts on customer evaluations, thereby contributing to the evolving discourse on e-service quality in emerging market contexts.

The results underscore that fulfilment (coefficient = 0.482, $p = 0.000$) and website design (coefficient = 0.441, $p = 0.000$) are the most influential and statistically significant drivers of overall e-service quality. These findings highlight that efficient order processing, reliable delivery, and a visually appealing, user-friendly website interface are pivotal to fostering favourable perceptions of service quality. The significance of these dimensions reflects the

increasing emphasis on operational excellence and digital usability as key sources of competitive advantage in online retail settings.

Conversely, privacy/security (coefficient = 0.072, $p = 0.214$), while positively associated with e-service quality, did not demonstrate a statistically significant effect. This outcome suggests that, within the studied context, robust security and privacy measures are perceived as baseline requirements rather than differentiating factors. Customers may implicitly expect strong security protocols and, therefore, primarily evaluate overall service quality based on functional and experiential attributes.

Furthermore, the study provides compelling evidence of the critical role of e-service quality in shaping customer outcomes. Overall e-service quality exerted a strong, significant positive influence on CPV (coefficient = 0.563, $p = 0.000$) and WOM (coefficient = 0.614, $p = 0.000$). Among these relationships, WOM emerged as the most robust, demonstrating that superior service experiences not only enhance perceptions of value but also stimulate positive interpersonal communication and advocacy. This reinforces the theoretical proposition that high service quality fosters both transactional satisfaction and relational benefits, thereby driving sustainable customer engagement.

Collectively, these findings advance the theoretical understanding of e-service quality by demonstrating that fulfilment and website design are the primary levers through which online retailers can create value and encourage positive word of mouth. At the same time, privacy and security remain necessary but insufficient conditions for competitive differentiation. From a managerial perspective, the results call for strategic investments in website functionality, interface design, and logistical efficiency to strengthen customer trust, elevate perceived value, and promote voluntary brand advocacy.

This study contributes to the growing body of e-service quality literature by contextualising its determinants and outcomes within a South African higher education environment. The evidence affirms that superior e-service quality, driven predominantly by fulfilment and website design, is a critical catalyst for enhancing CPV and generating positive WOM, thereby offering a sustainable pathway to customer loyalty and competitive advantage in digital marketplaces.

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TURNING THE SUN INTO POWER: THE NOUR MODEL FOR BOOSTING SOLAR ENERGY IN NORTHERN EUROPE***Chaymae Srati ^{1*}, Najwa Gouitaa ², Fatima Zahra Ahjyaje ³, Najiba El Amrani El Idrissi ⁴,
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Abstract. This paper explores innovative pathways for solar energy conversion in Northern Europe, using the Noor Solar Power Station in Morocco as a benchmark. As one of the world's largest concentrated solar power plants, Noor offers key insights into high-efficiency energy production and scalable infrastructure. The study examines the feasibility of adapting similar models to the Lithuanian context, characterised by lower solar irradiance and colder climatic conditions. Through a comparative analysis, we investigate how photovoltaic systems can be optimised in Lithuania using adaptive architectural design, seasonal storage, and smart energy management. Particular attention is given to regional solar exposure, with southern and southeastern Lithuania identified as the most favourable areas for pilot implementation. By bridging the gap between high-irradiance and low-irradiance regions, this research outlines a strategic vision for sustainable solar deployment, contributing to Lithuania's long-term energy resilience and environmental goals.

Keywords: Lithuania; Solar Cells; Conversion Efficiency; Perovskite; Sustainable Energy

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1. Introduction

Developing an effective and coherent energy policy, whatever the initial equation (resources, location, means), requires considerable foresight and a willingness to make long-term choices. Over the last ten years or so, the concept of energy transition has become increasingly commonplace in political discourse, particularly in Europe (Collard 2016). Today's challenge is no longer limited to identifying new solutions to meet future energy needs amid gradually depleting oil and gas reserves. It also involves developing alternative technologies capable of reducing CO₂ emissions, or even eliminating them, drawing inspiration from natural mechanisms such as photosynthesis, which uses the carbon dioxide present in the atmosphere. Science has reached a significant level of maturity, but the challenge remains considerable for both researchers and political decision-makers. Every country needs to develop a roadmap for its energy transition due to the availability of different energy resources (Kalair et al. 2021). So, the innovation plays a vital role in this transition. We can talk about energy conversion technologies such as solar thermal, photovoltaic, wind or biomass constantly evolve to become more efficient, more economical and more environmentally friendly (Redouani et al., 2024; Zemlickienė et al., 2024; Zemlickienė et al., 2024; Talbi et al., 2025; Vestertė et al., 2025; Smaliukienė & Katina, 2025; Sebbaghi et al., 2025; Amraoui et al., 2025; Chiki et al., 2025; Taib et al., 2025).

Following the closure of the Ignalina Nuclear Power Plant (INPP), Lithuania's dependence on imported fossil fuels (natural gas, oil and coal) increased considerably. In 2010-2011, the country's energy dependency reached around 82%, well above the European Union average of 53% (Gaigalis and Skema 2014). Faced with this situation, Lithuania has embarked on an energy transition policy. In 2011, renewable and indigenous energy sources accounted for 18.3% of gross domestic energy consumption. Biomass dominated this renewable mix, accounting for almost 69%, mainly in the form of firewood and agricultural residues. The country has also invested in wind power, biogas and biofuels. The idea for this research emerged from the observation of Lithuania's substantial seasonal variability in solar irradiation, which limits photovoltaic performance during winter months. Building on this contrast, it became relevant to regard the Noor solar complex not only as a technological success adapted to desert conditions, but also as a transferable model (Ab, 2020) whose principles—material optimisation, thermal management, and large-scale integration—could be reinterpreted to address the specific challenges of Baltic climates. This study examines the influence of seasonal variations in solar radiation in Lithuania and explores innovative strategies to enhance solar energy production. By leveraging the highlight absorption properties of perovskite materials, we highlight notable gains in conversion efficiency. Drawing inspiration from the Nour solar power station in Morocco, we propose integrating energy storage systems to preserve surplus energy during peak summer periods, thus addressing Lithuania's winter limitations.

2. Materials and Methods

This article was prepared based on an in-depth review of recent scientific literature and in close collaboration with specialists in energy and functional materials. The data used primarily come from scientific articles indexed in international databases such as ScienceDirect, Scopus, and Web of Science, covering the period from 2015 to 2024. Quite a few scientific publications were consulted and analysed, focusing mainly on the properties, performance, and high efficiency of materials used in energy conversion. The analysis was carried out using recognised methodologies for evaluating experimental data and device performance. Comparisons between studies were made using standardised indicators that considered energy efficiency, material stability, and environmental impact.

3. Status of Renewable Energy Usage in Lithuania

The structure of Lithuania's renewable energy consumption highlights a clear predominance of traditional biomass sources (Gaigalis & Katinas, 2020; Official Statistics Portal (n.d.)). This distribution underscores Lithuania's continued reliance on biomass-based resources. It highlights the need to diversify towards high-efficiency, low-carbon technologies, particularly in light of seasonal solar variability and energy security goals.

Renewable energy resources consumption structure, 2022

Per cent

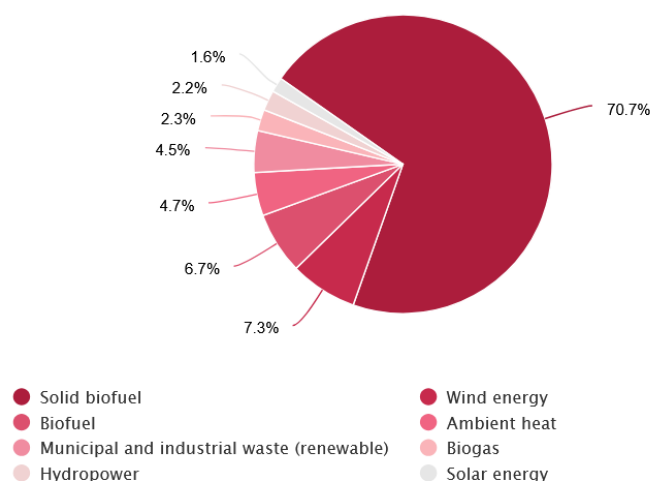


Figure 1. Composition and distribution of the renewable energy in gross inland fuel and energy consumption in Lithuania in 2022

Source: Official Statistics Portal (n.d.) Energy https://osp.stat.gov.lt/en_GB/energetika

In 2017, energy consumption in Lithuania was distributed across several key sectors. The transport sector accounted for the largest share, consuming 37% of the total energy, followed by households at 27%, highlighting the importance of residential energy use. Industry accounted for 20% of total energy consumption, while commercial and public services accounted for 13%. The remaining 3% was attributed to other sectors. This distribution underscores the dominance of transport and households in Lithuania's energy consumption profile during that year. Since the definitive closure of the Ignalina nuclear power plant in 2009, Lithuania has progressively increased its dependence on electricity imports, reaching around 63% of its national consumption in 2023, mainly via interconnections with Poland, Latvia and Sweden. This situation has worsened against a backdrop of soaring energy prices, with the cost of electricity doubling and the cost of gas for households increasing fivefold between 2020 and 2023 (Report 2025; sample-energy-data n.d.). In response to this energy vulnerability, the Lithuanian authorities have launched an ambitious strategy to cover 70% of electricity production from local sources by 2030. This transition is primarily driven by the development of renewable energy, of which bioenergy currently accounts for the largest share, thanks to the use of wood and agricultural waste. In 2023, wind energy accounted for almost 42% of renewable electricity production, compared with 17% for hydroelectricity, while solar energy is making slow progress (Lithuania - Countries & Regions - IEA n.d.). However, the country continues to experience substantial seasonal variability, particularly in winter, when sunshine levels fall, and demand rises. This constraint underscores the need to strengthen energy storage capacities and adapt conversion technologies to local climatic conditions to ensure stable, sustainable energy production. Lithuania faces major climatic challenges, with low winter solar irradiation limiting photovoltaic production. Its heavy dependence on energy imports makes it vulnerable to fluctuations in the European market. At the same time, the need to reduce emissions calls for a rapid transition to local renewable sources. These

constraints call for innovative solutions that combine storage, energy efficiency, and climate-adapted technologies.

4. The Noor Solar Station (Morocco): A Benchmark of Solar Innovation

Morocco attaches particular importance to clean energies as a means of reconciling socio-economic development and environmental protection. Committed to combating climate change, the country adopted a "new national energy strategy" in March 2009. The strategy aims to strengthen the security of supply, ensure greater energy availability, improve the competitiveness of the productive sector, and protect the environment. The strategy also marks the start of a genuine energy transition, placing renewable energies and energy efficiency (EE) at the heart of national priorities. Among Morocco's renewable energy resources, solar energy holds the highest potential and significance (El Mghouchi, Ajzoul, and El Bouardi 2016). This is reflected in the implementation of large-scale renewable energy projects, such as the NOOR I solar project in Ouarzazate. This investigation is critical for several reasons. The region boasts vast stretches of flat desert, perfect for installing large-scale solar power plants, and its low population density limits land-use conflicts. Ouarzazate enjoys one of the highest levels of sunshine in the world, with a DNI (Direct Normal Irradiation) of around 2,420 kWh/m²/year (Figure 2). This level of sun is ideal for CSP technologies, which require high levels of direct irradiation to be effective. This level of sunshine is perfect for CSP technologies, which require high levels of direct irradiation to be effective (Ennaceri et al. 2018).

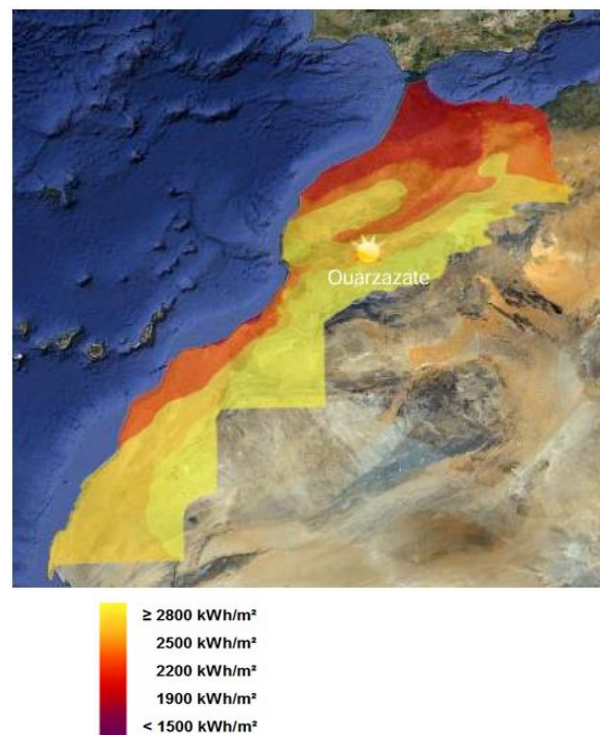


Figure 2. Map of direct solar irradiation in Morocco, showing the city of Ouarzazate (Masen, 2012).

In this section, we present the DNI and GHI values generated by several satellite databases. For comparison, the annual average GHI and DNI using different satellite-based databases (NASASSE, PVGIS-Helioclim, Climate-SAFPVGIS and Solar Med Atlas) are presented in Figure 3. The solar resource assessment for the Ouarzazate region, illustrated in Figure 4 of the study, was conducted by Bousselamti and Cherkaoui (2019), highlighting the site's exceptional potential for photovoltaic (PV) and concentrated solar power (CSP) applications. Figure 4(a) displays the monthly average variation of global horizontal irradiation (GHI) and direct normal irradiation (DNI).

The GHI reaches its peak values between April and August, with daily averages approaching 8500 Wh/m²/day. In parallel, the DNI is particularly elevated from January to June, exceeding 8000 Wh/m²/day. These high levels of both global and direct irradiance underscore the year-round solar abundance in the region, making it highly suitable for solar energy systems. Notably, the annual DNI surpasses the economic threshold for CSP deployment, generally set between 1900 and 2000 kWh/m²/year. Figure 1(b) provides the annual average hourly profiles of GHI, DNI, and ambient temperature. Both irradiance types exhibit typical diurnal behaviour, peaking between 12:00 and 14:00, which aligns well with periods of high electricity demand. Notably, the average daytime ambient temperature remains below 25°C, a favourable condition for PV systems whose efficiency typically declines at elevated temperatures. Moreover, the DNI remains consistently high between 08:00 and 18:00, ensuring efficient operation of CSP collectors throughout the solar window.

These results confirm that Ouarzazate offers optimal climatic conditions for the deployment of hybrid PV-CSP systems. The combination of strong direct and diffuse irradiance, along with moderate ambient temperatures, not only enhances overall system performance but also supports stable, predictable energy generation. This is particularly advantageous for hybrid systems equipped with thermal energy storage (TES), enabling flexible dispatch and continuous power supply even beyond daylight hours.

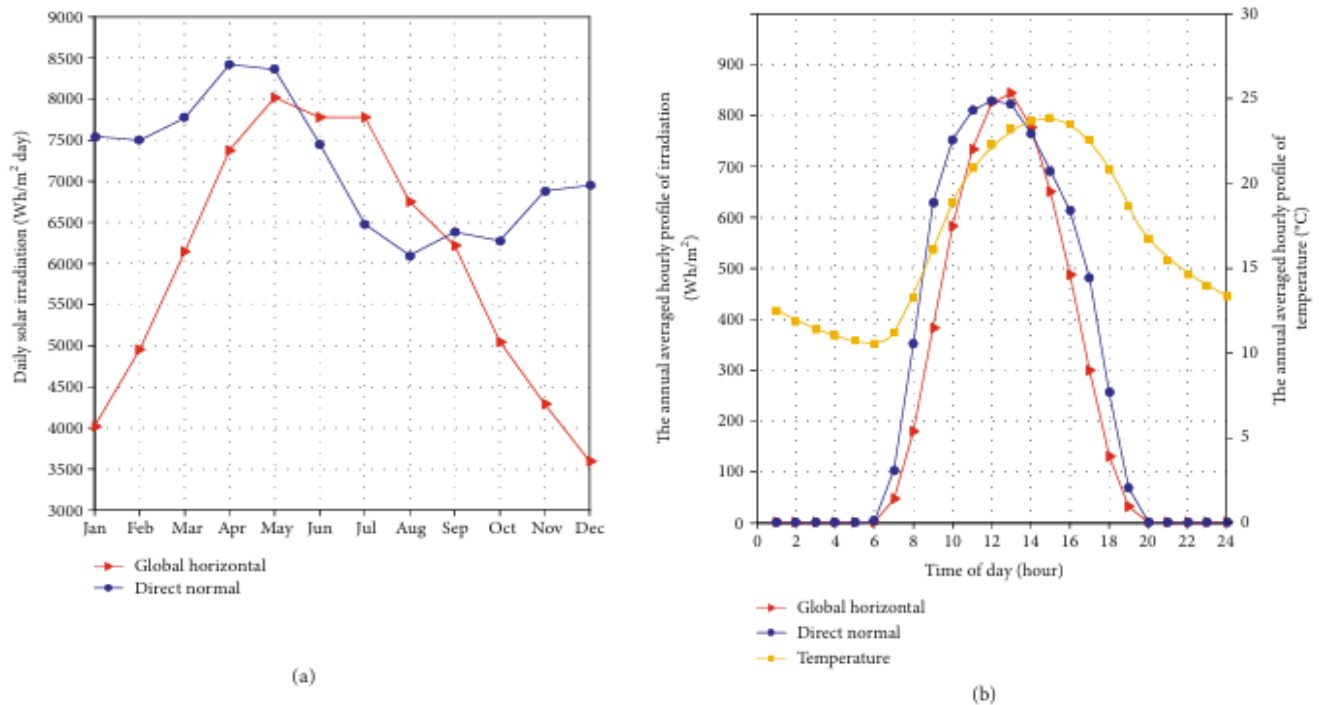


Figure 3 (a) Monthly average values of global and direct irradiation for Ouarzazate

Figure 4 (b) The annual averaged hourly global horizontal irradiation, direct normal irradiation, and temperature profile for Ouarzazate (Bousselamti & Cherkaoui 2019).

The Noor solar complex in Ouarzazate, Morocco, is one of the world's most significant solar projects, combining several complementary solar technologies. The majority of its installations use Concentrated Solar Power (CSP) technology, which, unlike conventional photovoltaic systems, concentrates sunlight to heat a thermal fluid, enabling electricity to be generated by a turbine (Table 1).

Table 1. Surface, Capacity, and Storage Features of Noor Complex

Phase	Technology	Surface area	Electrical power	Type of Cells or System	Thermal Storage
Noor-I	Parabolic Trough CSP	~450 hectares (~4.5 km ²)	~160 MW	No PV heat transfer fluid system	3 hours
Noor-II	Parabolic Trough CSP	~680 hectares (~6.8 km ²)	~200 MW	Same as above	7 hours
Noor-III	Central Tower CSP	~750 hectares (~7.5 km ²)	150 MW	Same as above	7-8 hours
Noor-IV	Photovoltaic (PV)	~210 hectares (~2.1 km ²)	~72 MW	Crystalline silicon solar cells	None

The first phase of the project, Noor I, uses parabolic trough mirrors to concentrate the sun's rays on tubes containing a heat transfer fluid, with an installed capacity of 160 MW and a thermal storage system with a duration of around 3 hours. The next phase, Noor II, uses the same technology, with a capacity of 200 MW, while improving storage performance to 7 hours. At the same time, Noor III adopts a different configuration, based on a central tower. Heliostats (adjustable mirrors) concentrate the sun's rays onto a receiver placed at the top of a tower, enabling higher temperatures (~565°C) to be reached, and thus greater thermal efficiency. The system incorporates a molten-salt storage system to ensure production for up to 7 or 8 hours after sunset. Complementing these thermal technologies, the fourth phase of the project, Noor IV, is based on a conventional photovoltaic approach, with a capacity of 72 MW. This plant is likely to use mono- or polycrystalline crystalline silicon cells. Unlike previous phases, this technology produces electricity directly, without thermal fluid or integrated storage. Trackerless photovoltaics are particularly attractive for their reduced production and operating costs and require less maintenance. These systems operate without any additional energy input, unlike panels equipped with motorised trackers, which consume a small amount of energy to orient themselves according to the sun. However, dual-axis trackers can deliver around 30% greater efficiency than fixed systems, which may justify their use under optimal sunlight conditions.

5. Towards Resilient Photovoltaics: Adapting Solar Technologies to Lithuanian Climatic Conditions

In the context of optimising solar energy deployment across Lithuania, identifying regions with high solar irradiation is essential for ensuring both technical and economic viability (Figure 5). Based on long-term photovoltaic output data, several areas stand out as particularly favourable for the establishment of solar power plants. The southwestern and southern regions of the country offer the highest solar potential, with Tauragė, Marijampolė, and Alytus receiving more than 1070 kWh/kWp annually. These locations provide stable, efficient conditions for large-scale photovoltaic installations. The southern part of Kaunas also emerges as a promising site due to its advantageous solar yield and central location. Additionally, the coastal region of Klaipėda—despite its relatively humid climate—has strong potential for hybrid energy systems combining solar and wind power. The southern outskirts of Vilnius are equally notable, offering both sufficient solar exposure and accessibility, making them ideal for urban and peri-urban solar energy projects. Based on the comparative results shown in Figure 6, this analysis can be further extended beyond Lithuania to include Poland and Italy. The results indicate that Lithuania and Poland exhibit very similar conditions in terms of both theoretical and practical photovoltaic potential, reflecting comparable climatic and solar environments. In contrast, Italy shows characteristics more closely aligned with Morocco, suggesting that these two countries share similar solar resource profiles and PV potential patterns.

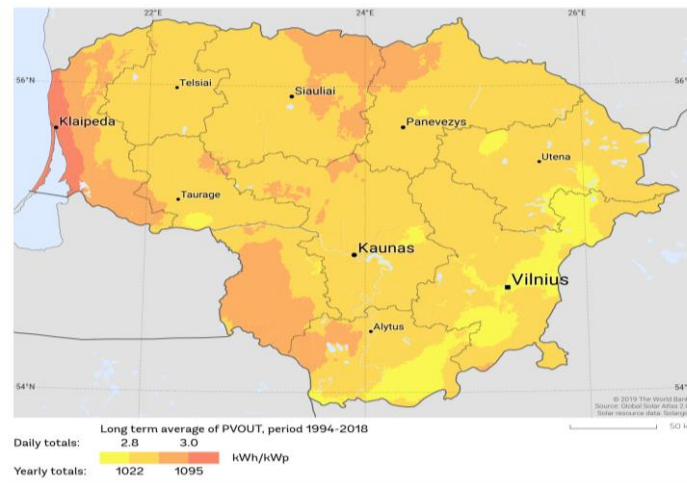
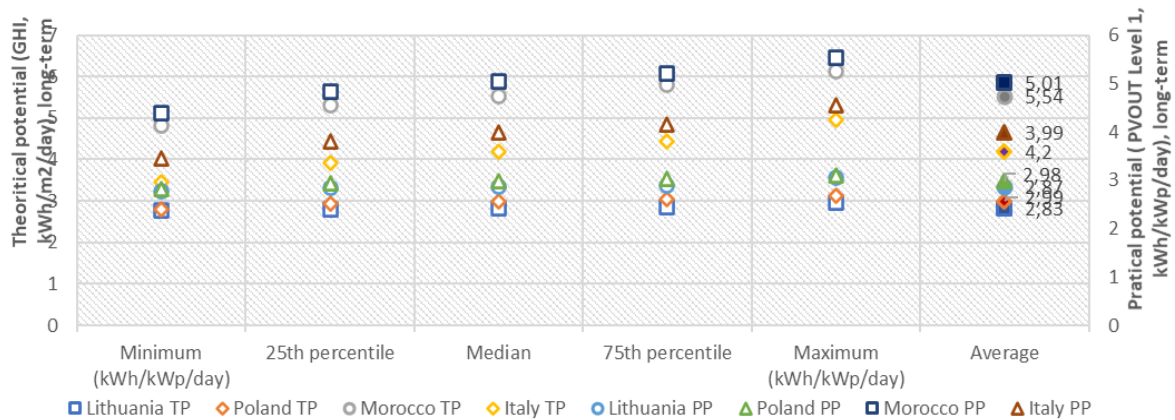


Figure 5. Map of Lithuania solar Direct irradiation



Source: World Bank (2020)

Figure 6. Comparison of descriptive characteristics of theoretical and practical PV potential for Lithuania, Morocco, Poland and Italy

Table 2. Matching Solar Technologies to Regional Solar Profiles in Lithuania

Technology / Material	Efficiency (approx.)	Advantages	Recommended Zones in Lithuania
Hybrid Halide Perovskites (HaPs)	20–25% (lab scale)	Excellent light absorption, performs well in low light, low cost	Kaunas, Alytus, Vilnius
Tandem Cells (Silicon + Perovskite)	Up to 30% (lab scale)	Broad spectrum absorption, high efficiency, suited to variable climates	Kaunas, Marijampolė, Vilnius
Cadmium Telluride (CdTe)	18–22%	Performs well in cold and diffuse light conditions	Klaipėda, Šiauliai
Copper Indium Gallium Selenide (CIGS)	17–20%	Strong absorption, flexible, tolerant to partial shading	Tauragė, Marijampolė, rooftops or uneven surfaces
Silicon Heterojunction (HJT)	22–24%	High performance in low irradiance, stable in cold temperatures	Alytus, Tauragė, residential zones near Vilnius

To fully harness the solar potential in regions such as Tauragė, Marijampolė, Alytus, southern Kaunas, and the Klaipėda coast, it is crucial to deploy photovoltaic technologies capable of capturing a broad range of the solar spectrum, especially under variable weather conditions (Table 2). Among the most promising materials, hybrid halide perovskites stand out for their high efficiency and excellent light absorption properties, even in diffuse sunlight. Their combination with silicon in tandem solar cells allows for expanded spectral coverage and enhanced efficiency, power densities approaching 500 W/m² in the best conditions (Höranter & Snaith 2017; Li et al. 2021; Tang et al. 2024), making them ideal for Lithuania's temperate climate. Additionally, cadmium telluride (CdTe) has a typical power density of around 120-150 W/m², depending on sunlight conditions (Ferekides and Britt 1994; Gupta, Parikh, and Compaan 2006; Luque and Hegedus 2011). CIGS (copper indium gallium selenide), for example, a 140 W flexible CIGS module weighs around 2.1 kg and measures 2583 mm × 348 mm, corresponding to a power density of around 140 W/m², flexible with good low-light performance (Repins et al. 2009; Song et al. 2010). Those technologies offer robust performance under partial shading and cooler temperatures, which are common in the coastal and northern parts of the country. Finally, silicon-based heterojunction (HJT) cells deliver excellent performance in low-light conditions and maintain high efficiency across seasonal variations. Heterojunction silicon (HJT) solar cells produce a high electrical energy density of around 268 W/m² under standard conditions, thanks to a record efficiency of almost 27% and excellent management of electrical losses (Lin et al. 2023; Wang et al. 2024). Integrating these advanced materials into solar infrastructure would significantly improve energy yields and ensure the long-term viability of solar stations in Lithuania's most irradiated regions.

6. Enhancing Solar Energy Reliability Through Advanced Energy Storage Integration

The integration of energy storage systems with high-performance photovoltaic (PV) technologies is a crucial step toward achieving a stable, resilient, and efficient renewable energy infrastructure. (Kalair et al. 2021) While next-generation PV materials such as hybrid halide perovskites, tandem solar cells, and CIGS modules offer remarkable conversion efficiencies and adaptability to varying climatic conditions, their intermittent nature—dependent on sunlight availability—presents a key challenge for continuous energy supply.

To address this, advanced battery storage systems such as lithium-ion offer high power density, typically between 200 and 700 W/kg (Patel, 2023), enabling rapid discharges and high instantaneous power and high charge/discharge efficiency (~90%). Li-ion batteries generally have an average lifespan of around 500 cycles, depending on chemistry and use (Singh et al. 2014). The density for Sodium-Ion Batteries is 50–100 Wh/kg (Slater et al. 2013), and for vanadium redox flow batteries, it is 100 Wh/kg (Maksudovna Vafaeva and Sanjeeva 2024). These systems are designed to store large quantities of electricity generated during peak solar hours and release it during periods of low solar radiation, including nights and overcast days. In particular, flow batteries and emerging solid-state technologies offer long cycle life, high safety, and deep discharge capabilities, making them suitable for long-term and large-scale storage applications.

When strategically deployed alongside high-performance PV systems—especially in high-yield zones like Alytus, Tauragė, and Klaipėda—these storage solutions can significantly reduce energy curtailment, stabilise local grids, and facilitate the integration of solar power into urban and rural energy networks. Furthermore, the coupling of PV with storage not only improves the economic value of solar installations by enabling time-shifting of electricity use but also supports energy independence and decarbonisation goals on a national scale. This radar chart (Figure 7) compares two solar energy conversion strategies—high-efficiency photovoltaic systems combined with energy storage and concentrated solar power (CSP)—across five key criteria: climate suitability, diffuse-light performance, storage potential, installation cost, and technical complexity.

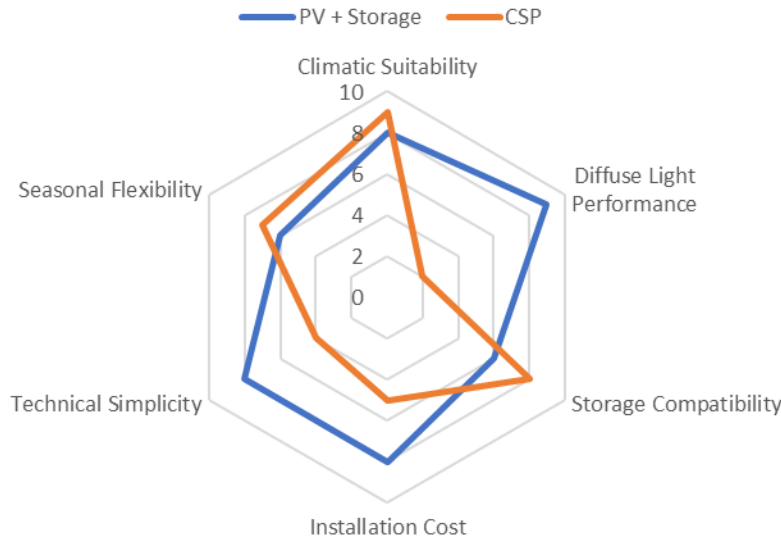


Figure 7. Comparative analysis of PV + storage versus CSP technologies in Baltic climates

The results highlight that PV + storage systems are better suited to the Lithuanian context, offering better performance under low solar irradiance and greater flexibility. In contrast, CSP systems, while efficient in high-sunlight environments and capable of thermal storage (as in Ouarzazate), are less effective under the variable, diffuse light conditions typical of northern climates.

Conclusions

By integrating the Noor Station's large-scale vision with the realities of the Lithuanian climate and geography, this project offers a compelling model for energy transition in northern Europe. With a moderate solar irradiance of $\sim 1,000 \text{ kWh/m}^2/\text{year}$ and an optimised surface area of 100 hectares in Klaipėda, Lithuania, the potential for clean, stable energy production is up to 104 GWh annually. The use of CIGS thin-film photovoltaic technology ensures both performance under diffuse light and adaptability to local weather variations.

From an economic perspective, the transposition of a Noor-inspired solar project to Lithuania reveals significant profitability potential. While annual solar irradiation in Klaipėda is significantly lower than in desert regions, several operational advantages offset this limitation. Unlike Morocco, where dust and sandstorms necessitate frequent, costly cleaning operations, Lithuania benefits from a humid, rainy climate that naturally maintains the cleanliness of photovoltaic modules, thereby reducing operating costs. In addition, lower average temperatures improve conversion efficiency by mitigating thermal losses, and the reduced intensity of ultraviolet radiation may prolong module lifetime. These climatic characteristics suggest that, despite lower irradiation levels, the Lithuanian context offers a favourable framework for cost-effective large-scale solar deployment, provided that seasonal variability is addressed through adequate storage and grid-integration strategies.

This analysis demonstrates that, even in non-desert climates, solar infrastructure can be not only viable—but strategically powerful. Lithuania is no longer merely a consumer of renewable innovation; it now stands as a potential architect of its own solar future.

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INSIGHTS INTO NEOREALISM'S ENDURING RELEVANCE: THE GREY ZONE AS AN ARENA OF GREAT POWER COMPETITION IN THE 21ST CENTURY**Vladimír Andrassy¹, Martin Ondruš², Boris Ďurkech³**^{1, 2, 3} *Armed Forces Academy of General Milan Rastislav Štefánik, Liptovský Mikuláš, Slovakia address**E-mails:*¹ vladimir.andrassy@aos.sk; ² martin.ondrus@aos.sk; ³ boris.durkech@aos.sk*Received 17 October 2025; accepted 27 January 2026; published 30 March 2026*

Abstract. This article offers scholarly insight into contemporary international relations, which in recent years have been increasingly shaped by the intense rivalry between great powers, taking place below the threshold of open armed conflict. This article examines the enduring relevance of neorealism in explaining the dynamics of competition in the grey zone in the 21st century. Drawing on structural realism, the study argues that the fundamental characteristics of the international system – anarchy, the primacy of state actors, and the pursuit of security through relative power – remain central despite profound changes in the domains, instruments, and technologies of conflict. Particular attention is paid to the conceptualisation of the grey zone as an operational space between war and peace, where state actors employ hybrid, coercive, and ambiguous strategies to advance their interests while avoiding escalation. By comparing Cold War precedents with contemporary practices, the article demonstrates both continuity and transformation in great power behaviour. The findings suggest that grey-zone strategies strengthen neorealism's explanatory power and highlight its enduring analytical value for understanding strategic competition, hybrid threats, and the evolving global security environment.

Keywords: hybrid threats; neorealism; security environment; gray zone; cold war; great power competition; rivalry

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1. Introduction

In international relations, the end of the Cold War represented a breakthrough, creating, on the one hand, an entirely new global security environment. On the other hand, this change prompted the scientific community to question the validity of neorealism as the dominant scientific paradigm and to claim an imaginary victory of liberalism over realism. Philosopher Francis Fukuyama, in his book "The End of History and the Last Man", argued that, following the triumph of liberal democracy over communism, humanity has reached the endpoint of its ideological development. There will be no need to wage wars, as liberal democracy will be universal (Fukuyama, 1989). From these premises, it was concluded that international politics should be conducted in a more institutionalised manner, characterised by respect for international law, the protection of human rights, collective security, and a more active role for international institutions, namely the United Nations. In other words, the post-Cold War era poses a fundamental challenge to the survival of neorealism (Koukoudakis, 2022).

However, since the beginning of the 21st century, when developments in the regional and global security environment have again deteriorated (Ivančík & Nečas, 2023; Jurčák & Ivančík, 2023), mentions of growing rivalry between great powers have appeared quite frequently (Kaplan, 2019; Westcott, 2020; Zhang, 2023; Cséfalvay, Kazanský & Rýsová, 2024; Bukhari, Hamayoun & Khan, 2025).

Rivalry is an observable phenomenon that is increasingly frequent in the strategic documents of great powers (The White House, 2017; Department of Defence, 2018; Cabinet Office, 2015). The rivalry, however, does not suggest "hot" war but a Cold War proxy war with the added element of the so-called grey zone. The term "grey zone" characterises the space in which state actors conduct their activities, respectively compete below the threshold of armed conflict. The capabilities of global actors, particularly in influence and power projection, continue to dominate the international system in the 21st century. The behaviour perpetuates the confusion in this system and the actions of individual state actors who seek to advance their own interests through interactions with other actors. In addition to the above, the absence of a supranational institution that would curb states' egocentric tendencies also contributes to maintaining this state of affairs (Frunzeti & Bărbulescu, 2017; Vrbovský et al., 2024; Trochan, 2024).

It is therefore reasonable to accept a framework of international relations which, despite the imaginary wish of liberalism as the only "panacea" after the Cold War, is still present in international relations in the form of an unrelenting neorealism.

2. Neorealism in International Relations

Structural realism, respectively, neorealism as a theory, emerged in the 1970s of the 20th century as a response to criticism of classical realism. The theory in question remains, to this day, one of the most influential theories of international relations, and it is also applied to issues of security and great power rivalry. Kenneth Waltz is considered the author of neorealism, whose 1979 publication "The Theory of International Politics" is a key work of the theory. Waltz, within the framework of neorealism, identifies several characteristics associated with classical realism. He considers the analysis of power, especially military power, as a key characteristic for understanding international relations. Waltz also advocates an understanding of international relations as a battlefield on which individual actors confront each other militarily and thus compete to gain dominance, respectively, power superiority over other actors. Another overlapping element of realism and neorealism is the fundamental mechanism that regulates international relations: the balance of power. The above concept was also considered crucial by realists such as Hans Morgenthau (2006), who defined 6 main principles of political realism provided below.

1. International politics is governed by a set of objective laws rooted in human nature.
2. The interest of state actors is defined in terms of power.
3. From the perspective of power, interest is defined as an objective category that is universally valid but lacks a fixed and definitive meaning.
4. Morality from a universal aspect of view cannot be applied to the actions of nation-states in the abstract. Instead, the specific circumstances of the case need to be considered, taking into account the context in both space and time.
5. It is necessary to distinguish between the moral aspirations of a nation at a particular point in time and the moral laws that govern its actions.
6. The principles, respectively, fundamentals of realism preserve the autonomy of the political sphere from all other spheres, which must be subordinated to it (Morgenthau, 2006).

Waltz advocates the view that states' external behaviour is independent of their internal functioning, systemic factors, and characteristics; rather, it is the decisive factor in their behaviour. Among the fundamental characteristics of the international system is its organisation, which neorealists consider anarchistic rather than

hierarchical, as opposed to within-state organisation. The anarchic nature of the system, respectively international anarchy, is seen as a cause of conflict (Drulák & Kratochvíl, 2009). By calling the global system an anarchist system, it is meant that in such a system, there is no superior authority, and the system is composed of (theoretically) identical units, namely, states. The absence of a superior power within the above constitutes a security dilemma, the solution to which constitutes one of the most complex issues in the discipline of international relations. According to Waltz, the solution within neorealism derives from one of the characteristics of the international system, namely the variable distribution of power (Turcsány, 2015). Waltz argues that the distribution of power, or the polarity of the system, is the only variable characteristic. Externally, the system consists of identical units (states), each with a variable distribution of power. Based on the number of dominant units, Waltz differentiates the system into unipolar (one dominant actor), bipolar (two dominant actors), and multipolar (three or more significant actors) (Drulák & Kratochvíl, 2009). The solution is aimed at distributing power among the units of the system, respectively, states, in such a way that none of them feels threatened and at the same time has no incentive to increase their power; it is about achieving stability through a balance of power (Turcsány, 2015). The most stable of the above systems, according to Waltz, is bipolarity, a system that existed at the time his theory was created (Drulák & Kratochvíl, 2009).

In the current period in security studies, realism continues to be the dominant influence, in its modern form, neorealism (Lašan, 2012). Waltz stresses the importance of the structure of the international system and related security issues (Waltz, 1979). The end of the Cold War has not led to a change in this structure, respectively system, which is characterised by anarchy. At the same time, the international environment remains one of constant competition between states. Steven Lamy, who works on international relations issues, has illustrated some of the fundamental differences between Waltz's neorealism and its predecessor, Morgenthau's classical realism. First, realism is an inductive theory that explains international politics by analysing the interactions and actions of individual states in the international system.

In contrast, neorealism depicts the international system as anarchical, shaping states' options in formulating their foreign policies. Second, while classical realism holds that power is an end in itself, neorealism holds that power is not only an end but also a means to achieve desired ends. The third difference concerns how individual states respond to anarchy at the international level. From the perspective of realism advocates, anarchy as such is a state of the system, with states reacting to it depending on their size, geographical location, domestic power, and the competence of their political leaders. In contrast, neorealists regard anarchy as a defining feature of a system that constrains the actions of all states equally (Lamy, 2001).

Despite these differences and the existence of multiple streams of realism, specific themes remain consistent. These include the assumption that states are the leading actors in international relations and that their main objective is to ensure their own security (Jervis, 1998). Within neorealism, there is an explicit assumption that individual states are primarily concerned with self-preservation. This assumption has little to do with defence or offence, but that does not mean states are merely trying to survive or are not offensively focused. It is an assumption about the preferences of all states, regardless of their intentions in pursuing them. This assumption is the antithesis of the political scientist Hans Morgenthau's assumption that all states seek to maximise their power. Kenneth Waltz argued that the balance of power, as a recurrent outcome of international relations, can be derived without assuming that states exert effort to maximise material power. Even if material power itself is ultimately significant, it is not considered an end in itself, but rather a means to an end (Telbami, 2010). According to a journalist, Fareed Zakaria, who works on international relations issues, states seek to maximise influence, not power, respectively to realise their preferences, no matter what those preferences are (Zakaria, 1998). Material power, in conjunction with neorealism, remains the most effective measure of the degree of influence and options that states have in realising their preferences beyond the self-preservation of the state (Telbami, 2010). Although neorealism assumes that all states seek self-preservation, it also acknowledges that preferences may differ from state to state. Otherwise, capabilities would be just a tool of self-preservation that would lose their meaning once

relative gains were secured. According to Waltz, the distribution of capabilities is part of the system's structure. In the anarchist world, relative power is seen as the most critical factor in determining influence. It represents an essential aspect for self-preservation as well as for the range of options that states have in realising their external preferences beyond self-preservation (Telbami, 2010). To the extent that neorealism can explain some of the motives of states, it can also explain their underlying pursuit of security, as well as a certain relative power as a means for realising other motives of the state. These other motives, which are essential to an accurate understanding of any state's foreign policy, may have multiple sources and require different theories. They can involve several factors, including domestic politics, ideology, leaders' personal preferences, and moral reasons (Telbami, 2010). To understand each state's foreign policy, the essential factors are the pursuit of security, which is key in neorealism, and the importance of relative power in clarifying and explaining the degree of opportunity for these states. Apart from the fact that relative power is seen as the primary instrument of politics, the accumulation of power is also a motive that is not perceived equally by all state actors. However, neither power nor security alone can fully explain the wide range of motives of individual states, especially the more powerful ones that have greater international opportunities (Telbami, 2010).

In the context of the above issue, power is an essential element for understanding international relations. Conceptualisation of the term "power" differs significantly across individual theories on this issue, and authors also differ in their definitions. One of the most basic definitions of power in international relations comes from political scientist Robert Dahl, who defined power as the influence over the actions of other actors and argued that an actor "A has power over B to the extent that he can get B to do something that B would not otherwise do" (Dahl, 1957). The above definition holds that an actor is powerful when it can influence the actions of another actor while at the same time resisting the opposite influence. Subsequently, several other definitions and approaches to power have emerged, offering ways to view power comprehensively and from different perspectives. Sociologist Steven Lukes has defined three dimensions of power. The starting point of the first dimension is Dahl's traditional approach, which characterises power as an explanation of the consequences of an action between two actors. The second dimension reflects the problem of non-action, respectively non-response. In this case, power manifests itself precisely in the fact that no action will be taken or the selected matter will not be discussed within the framework of political decision-making. The final third dimension incorporates the structure in which the individual actors exist, respectively operate, and which also influences their thinking. A different perception of power was characterised by the political scientist Joseph Nye, who is the author of the concept of soft power. Like Lukes, Nye defined three ways through which an actor can achieve his desired goals. These are coercion (the physical imposition of a desired state), persuasion (encouraging or bribing a particular actor to engage in a preferred activity or inaction), and attraction, which depicts a state in which the first actor begins to demand what the second actor possesses (Turcsány, 2015).

Based on the above possible conceptualisations of power, we can understand power itself as the capability of an actor to achieve or maintain a desired state within a broader conceptualisation. Power is fluid and specific to a selected area, so that it is not possible to definitively establish a general distribution of power among the various actors, e. g. by compiling a single coherent sequence that could be applied to all areas of the international system (Turcsány, 2015; Person, Kulalic & Mayle, 2024).

3. Possible activities in the grey zone

The literature on the concept of "grey zone" generally does not provide an explicit definition but instead outlines its main characteristics (Jordan, 2018, 2021). Ivančík and Nečas (2025, p. 39) define the grey zone as *"an operational space between peace and war, where hostile forces are actively operating, but whose activities do not exceed the threshold of an act of war in the legal sense"*. Center for Strategic and International Studies (CSIS) has defined the gray zone as *"an effort or series of efforts intended to advance one's security objectives at the expense of a rival using means beyond those associated with routine statecraft and below means associated with direct*

military conflict between rivals". When operating, respectively carrying out activities in the gray zone "*an actor seeks to avoid crossing a threshold that results in open war*" (Sheppard et al., 2019). Another definition from the RAND Think Tank characterises the gray zone as "*an operational space between peace and war, involving coercive actions to change the status quo below a threshold that, in most cases, would prompt a conventional military response, often by blurring the line between military and nonmilitary actions and the attribution for events*" (Morris et al., 2019).

The United States (hereinafter referred to as "US") National Intelligence Council (hereinafter referred to as "NIC") defines the grey area in international relations as the space between peaceful interstate diplomacy, economic activity, and people-to-people contacts on one side of the spectrum and armed conflict on the other. Activities carried out in the grey zone, such as coercive or subversive activities, are used to achieve stated objectives at the expense of different parties and in violation of, or without adherence to, international standards. Activities and campaigns conducted in the grey zone are likely to increase in the coming years and become a dominant element in great power rivalries and international relations more broadly. This is due to erosion of global standards, the absence of global standards, emerging, evolving, and expanding domains, as well as the perception of their synergistic advantages (National Intelligence Council, 2024). Recent as well as ongoing conflicts in the Middle East region and Ukraine demonstrate that campaigns conducted in the grey zone can be both a complement and a suitable alternative to armed conflict and diplomacy. In some instances, state actors carry out such activities outside of discernible campaigns, which consequently complicates both analysis and the formulation of policy decisions. The clandestine nature of many such activities means that intelligence gathering and analysis are a unique means of detecting the intentions of the actors concerned and attributing responsibility (National Intelligence Council, 2024).

In the absence of a definitive definition of the grey zone, the term has been used to describe activities ranging from the Islamic Republic of Iran's attacks on US officials, to the Russian Federation's electoral disinformation, to the People's Republic of China's militarisation of islands in the South China Sea. The NIC sees the grey zone as hybrid, asymmetric, and irregular warfare, as well as strategic rivalry. Based on a review of definitions from various researchers, the NIC believes that the absence of standard definitions may indirectly facilitate adversaries' campaigns to operate in the grey zone while hindering effective responses from the international community (National Intelligence Council, 2024). Campaigns carried out within the grey zone are characterised by a persistent multi-domain approach, indirect methods, deliberate ambiguity in objectives, and sponsorship. Factors helping to detect whether activities are part of a grey zone campaign include the following:

- managed by or on behalf of one state actor against another state and/or multilateral institution;
- in implementation as well as in response to a particular event, the goal is to stay below the threshold of sustained combat.
- The actor intends to achieve a political and/or security objective. These objectives may include, for example, weakening or changing a foreign government, forcing a change in behaviour, challenging or asserting sovereignty or effective control over a specific territory or domain, seizing sovereign economic resources;
- The desired outcome is to achieve material or physical effects or a substantial change in the political status quo.
- On the part of a particular actor, it is a conscious violation of international law or international norms concluded between states, as well as the exploitation of the absence of such documents (National Intelligence Council, 2024).

In the context of operating in the grey zone, both state and non-state actors engage in the following activities, which can be considered grey-zone activities (the above depends on the context), see Table 1.

Table 1. Possible activities in the grey zone

Domain/field	Possible activities in the grey zone
Cyber domain	<i>Cyber Attack</i> – Activities conducted in cyberspace with the intent to disrupt, deny access to, manipulate, degrade, or damage computers, various information systems, networks, physical and/or virtual computer-controlled systems, as well as information that constitutes the contents of, or passes through, any of the aforementioned systems.
Economic domain	This domain concerns the expropriation of sovereign resources, the seizure of property, and the imposition of embargoes or sanctions intended to exert pressure on a particular state without the consent of an international authority. <i>Economic coercion</i> – Cases in which the state, even with the use of its mandated entities, uses or threatens to use trade and investment barriers as well as restrictions on other forms of economic engagement. The purpose of the activities in question is to interfere with the legitimate sovereign decisions of the government of another state. <i>International Embargo</i> – Intended to prevent the lawful entry and/or exit of certain goods, services, investments, and information to/from another state without the use of armed force. <i>Economic sanctions</i> – These are economic measures that a state and/or a coalition of states apply against another state or a specific foreign governmental entity, non-state actor, or an individual. These measures are intended to restrict the targeted state's ability to engage in international trade or finance and are designed to achieve policy objectives distinct from trade retaliation.
Information domain	<i>Foreign Malign Influence</i> – Subversive, undeclared (including covert and clandestine), coercive, as well as penal, respectively criminal activities that are carried out by foreign governments, non-state actors, or through their proxies. The purpose of the activities in question is to influence the popular as well as political attitudes, perceptions or behaviour of another state to advance its interests. Foreign malign influence may include efforts to foment controversy, undermine democratic processes and institutions, or influence policy decisions in favour of the foreign actor's objectives.
Legal domain	<i>Arbitrary detention</i> – It is the detention of exclusively or substantially foreign nationals with the intention of influencing the policy of another state or securing certain concessions, including through false accusations, as well as disproportionate punishments for criminal offences. <i>Lawfare</i> – The conscious, deliberate use or manipulation of international law, international organisations, and domestic law with the intent to delegitimise another state or prevent it from achieving its international military or political objectives. Examples include false accusations of war crimes, requests for intervention by international judicial organisations such as the United Nations or the International Criminal Court. <i>Weaponised International Migration</i> – It is a deliberate manipulation of migration flows to coerce or influence a particular state.
Military and security domain	The domain includes provocations, support for armed proxy entities, including insurgent or terrorist groups, as well as states, and covert activities such as sabotage, assassinations, and other lethal, kinetic, and non-lethal attacks against foreign nationals. Activities involving the use of chemical, biological or radioactive agents are also included in this domain. <i>Assassination</i> – It is the targeted extrajudicial killing of an individual for political or ideological reasons. The exception to this is an attack on an individual who is a legitimate military target. <i>Electromagnetic Attack</i> – Attacks on personnel, miscellaneous facilities or equipment using electromagnetic energy, directed energy or antiradiation devices. Such attacks aim to degrade, neutralise, or destroy the designated target's capability. The effects of electromagnetic attacks may include jamming or blinding, as well as irreversible impact on targets. Similar effects can be exploited when using other forms of energy, such as acoustic energy. <i>Military provocation</i> – It is an activity, respectively an operation by the armed forces of a state whose primary purpose is to provoke a reaction from another state, to create a sense of threat, or to challenge the control of a particular area. Provocations can be distinguished from military exercises by their primary purpose: provocations are intended to provoke a reaction, whereas military exercises focus on force development. <i>Proxy</i> – The term refers to an entity that acts, at least in part, on behalf of a foreign state, non-state sponsor, or a sponsor that supports the achievement of a particular political or military objective. A proxy conflict is characterised by an external power or sponsor, known as the leading actor, that is indirectly involved by providing support to local combatants, referred to as proxies. <i>Sabotage</i> – An activity, or action, that is conducted with the intent to cause defective production, damage to critical infrastructure, and materials that are intended for national defence.
Space domain	The subject domain concerns kinetic, reversible, and non-reversible attacks on ground- and orbital-space assets. <i>RPO (Rendezvous and Proximity Operation)</i> – An activity in the space domain in which a space object deliberately approaches another object (rendezvous) and is maintained at such a close distance for a specific purpose.

Source: National Intelligence Council, 2024

Acting on a particular actor in a grey area is not without risk or cost. This may provoke a reaction from other states, which may ultimately lead to a weakening of the actor's, respectively the instigator's, military, political, and economic position. (Mazarr, 2020). In extreme cases, the gains from ambiguity and sequencing may lead the instigator to misjudge the seriousness of the red lines the adversary takes the situation to be, as well as the credibility of his deterrent measures (Freier et al., 2021).

4. Discussion

State actors use the grey zone to advance their power interests, as was the case during the Cold War and the bipolarity of the 20th century. In the context of strategic stability during the Cold War, nuclear parity made conventional war the most significant threat. Within this framework, the actors in the conflict during the period in question operated mainly in the economic and military domains. In the 21st century, the grey zone has considerably broader contours, as the possibilities of operating in this space have expanded to include other domains. In Table 2, we briefly characterise the commonalities and differences in grey-zone issues during the Cold War in the 20th and 21st centuries.

Table 2. Comparison of action in the grey zone

Gray zone	
20 th century	21 st century
– Operating in the grey zone: – open, implemented activities could be more clearly attributed to individual actors; – mostly in the military and economic domains, partly in the space domain; – achieving desired objectives without direct military confrontation; there was none between the actors during the Cold War.	– Operating in the grey zone: – hidden, it is challenging to attribute individual activities to a particular actor; – a wide range of activities across the cyber, economic, information, legal, military, security, and space domains. Also, in the context of continuous technological advances, the spectrum of possibilities is expanding; – achieving desired objectives without direct military confrontation, global actors carry out their activities without direct military confrontation with each other, or through proxy wars.

Source: Own elaboration

Applying hybrid goals in practice, resulting from the possibilities of the grey zone

A significant difference in the use of hybrid strategies in the grey zone to address crisis objectives is that, paradoxically, military force is no longer predominantly needed to achieve goals in international conflicts. Still, the success of victory depends on the sum of the use of political, diplomatic, financial, economic, social, information, communication, energy, technological and, last but not least, military tools (Šimelytė et al., 2021; Bargués et al., 2022; Khalatur et al., 2022; Ball, 2023; Dirma et al., 2024; Bergaust & Sellewag, 2024; Ivančík & Nečas, 2025; Okunevičiūtė-Neveauskienė et al., 2025).

The rapid development of information and communication technologies offers numerous opportunities to implement new strategies in the grey zone. An example could be the legitimisation of hybrid narratives through the spread of disinformation, conspiracy theories, hoaxes, or propaganda through social networks, which enable rapid mobilisation and dissemination of content, which means that ordinary users can be drawn into the hybrid actions of hybrid actors (Ivančík & Nečas, 2022; Bedley et al., 2025). All of this contributes to deepening ambiguity, internal societal division, and further complicating the political decision-making process.

Large military units during the Cold War, despite their constant increase in numbers and quality of military equipment, gradually lost their unique combat significance over time, while a common characteristic of the armies built during the Cold War and in connection with the above strategies was their gradually changing role, which, especially in the Eastern Bloc countries, became increasingly symbolic militarily.

In international blocs, among state actors in the grey zone during the Cold War, the use of coercive intent to intimidate was more prevalent. Conversely, elements for charging and occupying military territories were almost no longer used.

At the same time, so-called "support wars" occurred sporadically during the period, aimed at supporting friends against potential threats from enemies. Wars in support of third parties thus quickly entered the grey zone of military conflict, where they were officially categorised.

One example of this war, which took place in a conflict between hostile powers within the so-called Grey Zone, is the war in Syria, where regional powers – especially Saudi Arabia, Iran, and Turkey – competed for influence for a long time. However, the major world military powers, the United States and Russia, still had a significant impact on the conflict.

In the case of Ukraine and Crimea, the method of "fulfilling the goals" or "achieving the set tasks" was applied, which was a significantly more dangerous option for gaining territory.

Although such a strategy also had its advantages, especially in the initial moment of surprise, with a tendency to quickly break resistance, its disadvantage is, on the contrary, in the event of initial failure, their subsequent time lag in conducting further advancing military operations, which can result in a so-called "war of attrition", where, on the contrary, victory is conditioned mainly by the available resources for its long-term conduct.

In the absence of financial reserves, such an approach may also require the launch of a war economy, which initially shows a general increase in economic development. Still, in the long term, it actually gradually undermines it, mainly due to a lack of financial resources, but also due to limited strategic raw materials, material resources, and, last but not least, human potential.

The aggressor's activities in the grey zone are planned to focus on a "rapid disinformation and deterrent effect" towards an unprepared opponent, whose activities are constantly and purposefully questioned over a long period of time. However, if the opponent does not react immediately, in the long term, he gradually loses initiative, and his fighting spirit is significantly weakened, putting him in a very unpleasant position.

Last but not least, in the complex of international organisations, a new reality is changing that negates the preserved "status quo", while possible border shifts by individual states. However, they already call into question the UN Charter, but where, thanks to the "veto" right, the UN subsequently fails to unite the international community. At the same time, the possibility of enforcing other available UN instruments, such as resolutions, which, under normal circumstances, should be able to reverse adverse developments, is also unrealistic. This causes a significant shift in the "new reality" at the UN, where even the UN's fundamental goal - world peace - is receding into the background under pressure from a single aggressive superpower. The UN is, therefore, unfortunately, in practice more concerned with humanitarian activities than with the impossibility of stopping an attacking aggressor who has the "right of veto".

Another possibility is the so-called "salami practices", which form a chain of several inconspicuous actions that provide gradual, planned gains while at the same time preventing a direct, confrontational reaction from the adversary. But since they have a limited scope – only diplomacy can be used to resolve them, but it does not allow

the use of force and leaves room for diplomatic settlement of disagreements – but without sufficient guarantees that they will be determined and ultimately eliminated.

If applied together and implemented at once, they could lead to a long-term crisis or war. These are therefore "erosion tactics" that, in addition to generating problems, also reduce credibility, thereby deterring the adversary.

In contrast, major world powers on the international political scene, such as Russia and China, in the grey zone, significantly streamline their decision-making processes, which offers them greater room for manoeuvre in overcoming international barriers.

Their decision-making mechanisms are planned and are therefore significantly sophisticated, highly centralised, and, if necessary, sometimes even megalomaniac. Their most significant advantage is that they simultaneously face fewer state controls, with a substantial elimination of international control mechanisms created as institutional checks and balances. For China and Russia, this has a very special and undeniable advantage in confronting democratic states and their international blocs, which require a consensus or vote before taking their own rapid action.

In the case of Ukraine, unfortunately, practice has once again confirmed that the EU and NATO are at a disadvantage in decision-making processes compared to unilateral decisions applied in the case of China or Russia, whose decision-making cycle is not as congested as that of the EU, NATO, UN, OSCE, and so on. The intention of operating in the grey zone by global actors remains the same: to advance their power interests without direct military confrontation. One of the most significant differences in the implementation, respectively operation in the grey zone, is the attribution of specific activities to given actors. During the Cold War era, it was easier to attribute individual activities; nowadays, the field is highly complex. Also, based on the behaviour of state actors in international relations and, in the context of the above, the question arises whether another form of the 'Cold War' is taking place in the 21st century.

Conclusions

Despite some weaknesses, neorealism provides a compelling explanation of international relations in the current period. Elements such as anarchy, the absence of morality or the permanent struggle for power still characterise international politics (Koukoudakis, 2022, p. 26). Although relative power is considered the main instrument of politics, the accumulation of power also serves as a motive pursued to varying degrees by all state actors.

The grey area issue represents an old concept with a new name. In the context of achieving stated goals, the use of coercive and/or subversive instruments of power is a characteristic feature of statesmanship, as described by Chinese and Greek theorists from the 5th century BC. Diplomat and strategist George Kennan predicted during the Cold War in the 20th century that long-term rivalry between state actors would be characterised by "an extension of armed conflict by other means". In his arguments, he used the term "political warfare" to indicate "the employment of all means at a nation's command, short of war, to achieve its national objectives" (National Intelligence Council, 2024).

State actors in international relations operate, respectively, by using the grey zone to advance their power interests. Operating in the grey zone can complement armed conflict as well as serve as an alternative to it. The combination, as well as the correct timing of the application of the above characterised activities and tools, can contribute to achieving the desired objectives. The comprehensive implementation of the activities in question in the grey zone provides the actor with an advantage over an adversary whose defence is based on a classical linear approach. Some of the activities carried out by state actors are outside recognisable campaigns, which have some impact on subsequent decisions and their analysis.

The spectrum of options for action in this space is also constantly expanding with technological advances, further complicating the global security environment. Specific Cold War-era determinants remain in the current period, but they have been adapted to the current climate in various ways. In the coming period, the implementation of various grey-zone campaigns by state actors is likely to increase due to more difficult attribution of violations of international norms, as well as the evolution of individual domains and the exploitation of their synergies.

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CULTURAL INFLUENCES ON THE ECONOMY UNDER CONDITIONS OF UNCERTAINTY**Ona Gražina Rakauskienė^{1*}, Neringa Žibaitė²**^{1,2} Social Innovations Doctoral School, Institute of Business and Economics, Mykolas Romeris University, Ateities st. 20, LT-08303, Vilnius, LithuaniaE-mails: ^{1*} ona.rakaus@mruni.eu (Corresponding author); ² nezibaite@stud.mruni.eu

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Abstract. As economic instability grows and the risk of global threats increases – including pandemics, wars, climate crises, and sudden migration flows – conventional indicators of progress, such as gross domestic product (GDP), are increasingly recognised as insufficient to assess socio-economic development, societal resilience, and a country's capacity to recover from crises. This article highlights the role of culture in evaluating the socio-economic development of European Union member states under conditions of uncertainty. Culture is understood as a factor shaping long-term development trajectories, influencing not only economic outcomes but also institutional quality, social trust, and societies' ability to adapt to shocks. From a methodological perspective, the article applies criteria for assessing the cultural sector in line with the EU's "Beyond GDP" approach, focusing on cultural employment, the business environment of the cultural sector, and public expenditure on culture across EU countries. These indicators are analysed alongside levels of trust in public institutions and the Human Development Index (HDI), as well as their correlations, to identify key factors that may significantly impact societal resilience, sustainability, and long-term growth. Using descriptive and comparative methods, the study seeks to identify recurring patterns and structural imbalances across countries, particularly when high GDP levels are not reflected in social well-being or national stability. The empirical findings suggest that cultural indicators are more closely associated with long-term development outcomes than with short-term economic performance. The results indicate that the vitality of the cultural sector and consistent public support contribute to strengthening social cohesion and resilience, while their impact on economic growth is indirect and materialises through longer-term institutional and value-based transformations. The article concludes that culture should be regarded as a strategic resource for long-term development rather than a secondary component of economic policy, especially in contexts of global crisis and uncertainty.

Keywords: cultural and economic interaction; cultural indicators; socio-economic development; path dependence effect; general trends in cultural employment; cultural enterprises; government expenditure on culture; trust in government; Human Development Index (HDI)

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JEL Classifications: O1, O34

1. Introduction

Growing human insecurity, the threat of incurable disease pandemics, unprecedented socio-economic inequality, climate change and its ecological consequences, the escalation of international conflicts, the risks posed by artificial intelligence and information technologies, as well as limited public understanding of these threats and of measures to mitigate them, increasingly reinforce human vulnerability and contribute to a widespread sense of anxiety and instability (Mohammed & Ahmad, 2025; Gqalindaba, Lukman & Makiwane, 2024; Ivančík, Nečas & Iľáčiková, 2024; Ivančík & Nečas, 2025).

The Human Development Report 2021/2022 (UNDP, 2022) emphasises that global society is living in an era of uncertainty in which individuals struggle to manage their lives effectively. Global economic progress does not

necessarily translate into a sense of security for people. The United Nations' 2025 report already identifies emerging threats to humanity related to artificial intelligence, including disinformation, deterioration of mental health (particularly among young people), loss of human control, erosion of democratic processes, rising inequality, and environmental impacts (UNDP, 2025).

The COVID-19 pandemic led to a decline in the Human Development Index in almost all countries, while new and unforeseen virus variants continue to emerge. Record temperatures, wildfires, hurricanes, floods in some regions and droughts in others pose a serious threat to the planet's stability and further disrupt its fragile equilibrium. Against the backdrop of shifting geopolitical orders and growing tensions, armed conflicts persist in multiple hotspots, with the number of civilian casualties continuing to rise (Ivančík & Andrassy, 2025). Acute crises are increasingly giving way to chronic uncertainty and recurring global shocks that undermine human and societal development.

People around the world report feeling increasingly insecure and vulnerable. A special United Nations report on human security (2022) found that 6 out of 7 people worldwide reported feeling insecure at some point in their lives, even before the pandemic. Today, residents of even the wealthiest countries feel less secure than they did a decade ago. It is therefore unsurprising that many societies struggle to withstand pressures of polarisation and political extremism, further intensified by social media, artificial intelligence, and other powerful information technologies. This is reflected in the decline of the Human Development Index for two consecutive years following the COVID-19 pandemic (UNDP, n.d.).

In recent years, amid economic uncertainty and repeated shocks, research into the relationship between culture and the economy has become particularly important. Some scholars around the world (from the United States and Europe), as well as researchers in Lithuania, argue that culture constitutes a pathway to well-being and stability in people's lives, that material prosperity is shaped by a country's or nation's cultural code and that it is precisely behavioural norms and patterns among the population that influence balanced and sustainable economic growth.

Contemporary societies also exhibit rising levels of aggression. Aggression between nations at war, repression, alienation between peoples, hostility, and civil conflict represent forms of violence that must be addressed. Culture – particularly the culture of communication – plays a critical role in countering this aggression. Culture is inherently non-aggressive; it fosters restraint, calmness, balance, and inner stability, providing individuals with the capacity for self-regulation and resilience.

Research on the economic impact of culture has developed a solid theoretical and empirical foundation, particularly since the early 2000s, when creative industries began to be recognised as an integral part of the economy. Such studies often focus on the contribution of cultural and creative sectors to GDP, employment, innovation, and territorial development (Baculáková & Gress, 2021; Liu & Li, 2022; Kostakis & Lolos, 2024; Zhang & Wei, 2024; Li & Yan, 2024; Valiati & Möller, 2025; Dellisanti, 2025).

Due to its complexity and both direct and indirect effects, culture remains difficult to define and measure clearly and straightforwardly. Its impact is evident not only through direct economic contributions but also as a driver of innovation and a key factor in urban and regional regeneration. Culture helps to "bind together" different social groups and functions as a catalyst for economic recovery, especially in the aftermath of crises, shocks, and economic downturns.

In 2007, the European Union adopted its first cultural strategy. Currently, the EU is implementing the Creative Europe 2021–2027 programme (European Commission, 2021). At the same time, both economists and policymakers increasingly acknowledge that GDP has ceased to be an adequate primary indicator of economic well-being. The European Commission's "Beyond GDP" initiative aims to develop indicators that are as clear and

compelling as GDP, while better reflecting societal progress and quality of life (World Wide Fund for Nature, 2022).

The Lithuanian State Progress Strategy “Lithuania 2050: The Vision for the Future” identifies culture as one of the country’s key strengths and a defining feature of the state (Lithuanian Government, 2023). Culture is presented as a source from which values, identity, self-awareness, sovereignty, and the meaning of national existence emerge. It also contributes to improving quality of life, strengthening social cohesion, and promoting inclusiveness. The creative and cultural industries are recognised as a driving force of the economy, generating employment and fostering international connections.

In light of these developments, research on the impact of culture on socio-economic progress is particularly significant and relevant in the current era of prolonged uncertainty.

2. Theoretical framework

For several decades, scholars have sought to explain why some countries achieve greater economic sustainability and progress than others, and which factors shape their development trajectories and growth. Although numerous studies, assessments, and measurements have been conducted in this field, several assumptions and hypotheses have proven unsustainable over time. In addressing the question of why one country becomes a leader while another remains lagging, researchers point to the so-called path-dependence problem in contemporary economic theory. According to this concept, countries become locked into established trajectories and, despite attempts to break away, repeatedly slide back into familiar patterns (North, Wallis, & Weingast, 2009; Auzan, 2017). From this perspective, what constrains countries within these entrenched paths is not economic growth as such, nor the efficiency of economic policy or systems, but rather values and behavioural norms – namely, what societies define as good or bad, acceptable or unacceptable.

Research on path dependence and institutional lock-in, developed by Douglass North (1990), was recognised with the Nobel Prize in Economics. North's hypothesis explains how institutions and culture influence why countries tend to stay on existing development paths. The underlying cause ultimately lies in culture, which can evolve through education, learning, and sustained engagement with society over time. In their book "Violence and Social Orders", North, Wallis, and Weingast (2009) argue that transitions from lagging to leading economies are rare and require long time horizons – often up to 50 years.

Differences in living standards between countries are influenced by cultural values and the way institutions develop from them. Culture determines economic behaviour at the national level. Empirical research suggests that, historically, countries associated with what is often termed the “Protestant ethic” achieved higher levels of prosperity. However, this outcome is linked not to religion itself, but rather to patterns of behaviour, underlying values and worldviews. According to Auzan (2024), communities in which wealth is no longer viewed with suspicion and poverty is no longer treated as a moral virtue tend, over time, to move toward a higher standard of living. Cultural processes are slow, yet highly significant and effective, as societies themselves choose their values and behavioural models. There have been repeated attempts to explain why countries that have achieved growth subsequently slip back into established development paths. Auzan (2024) outlines three key hypotheses.

The first hypothesis assumes that economic growth alone is sufficient and that all other factors will adjust automatically. Empirical evidence, however, contradicts this assumption. For example, Lithuania's economy grew by 10.3% in 2003–2004 and by 9.8% in 2007, earning the label of a "Baltic tiger", yet this breakthrough proved unsustainable. This means that certain barriers exist that hinder progress, prevent breakthroughs, and make it difficult to sustain them once they occur. Among these are a lack of preparedness for long-term transformation, an absence of strategic vision, the devaluation of culture and education, their perceived lack of demand or necessity,

the tendency to displace them in favour of commercial and purely financial objectives, a fundamental failure to recognise the importance of these levers and a complete absence of attention given to them. Over time, countries striving for success, self-realisation, and material well-being may exit a previous state of stagnation but fail to enter a stable new one. In practice, this hypothesis has not been confirmed: it is possible to achieve a high rate of economic growth, yet in the absence of a clear understanding of what should follow, development tends to revert to established paths.

The second hypothesis is grounded in economic policy and centres on changes in the political system and democratisation. This assumption has also proven insufficient. Countries such as Singapore and Taiwan, despite limited democratic frameworks, have achieved and sustained high levels of economic development. Quantitative studies, including analyses of revolutionary outcomes, demonstrate that in countries with weak institutions and low respect for the rule of law, revolutions tend to worsen, rather than improve, economic conditions. This path, therefore, does not guarantee the desired results.

The third hypothesis, currently under examination, **emphasises culture as the key factor** – specifically, a form of culture capable of change through education and sustained societal engagement. Such processes can guide societies over a period of 10 to 15 years toward a desired direction and remove development blockages, as observed in southern Germany and, to some extent, in Poland.

The central lever in this process is the reinterpretation of values – particularly attitudes toward work, wealth, freedom, and long-term orientation. The critical point is the realisation that this is a long road that demands continuous work, and that those who promise a rapid leap within a short period are not to be trusted.

Two distinct trajectories of economic development can be identified, analogous to first and second cosmic velocities. Both involve growth and expansion, yet countries following the so-called "B" trajectory grow significantly more slowly than those on the "A" trajectory. Based on two centuries of statistical observation, only five cases of transition from the lower to the higher trajectory have been identified: South Korea, Japan, Hong Kong, Singapore, and Taiwan. All of these are Asian societies, traditionally influenced by Buddhism. At the turn of the twenty-first century, a notable "Catholic boom" also occurred, as Ireland, Poland, and southern regions of Germany experienced accelerated development.

Countries that have moved from lower to higher levels of development tend to share a **set of common principles**. **First,** their primary objective was **the realisation of national potential – rooted in human capital and its qualities – rather than mere survival**. **Second, they adopted a long-term strategic perspective extending well beyond electoral cycles.** In contrast, Lithuania exhibits weaknesses in both dimensions: limited emphasis on self-realisation and constrained strategic planning shaped by governance regulations. Although Lithuania appeared to break out of its established path in 2003–2004 and again in 2007, it subsequently reverted to earlier patterns. This indicates the existence of persistent structural constraints, including insufficient readiness for long-term change, undervaluation of culture and education, prioritisation of short-term financial goals, and limited awareness of the strategic importance of these factors. Recognising and addressing these constraints should become a decisive turning point.

In response to Samuel Huntington's concept of a "clash of civilisations" (1996), many scholars propose a "concert of civilisations", emphasising mutual cultural influence and interaction among nations. In numerous countries, multiculturalism has become an official foundation of state policy, while societies increasingly seek sources of strength in their civilisational roots. This process supports national self-respect and reinforces confidence in cultural identity. Henry Kissinger argues for a return to a meaningful, substantive economy and to dialogue among civilisations, stressing that diplomats must understand the cultures of the countries with which they engage

(Kissinger, 2022). The relevance of this perspective is already evident in the title of the book "Culture matters: How values shape human progress" by Samuel Huntington and Lawrence Harrison (2000).

In her 2025 paper "Resilient Human Development: Advancing Human Development in the Context of Shocks and Crises", Sabina Alkire integrates three closely related concepts: sustainable human development, oriented toward advancement and progress, is not possible without the idea of human security – protection from risks and crises and preparedness for them. In other words, resilience brings these perspectives together, helping societies not only grow but also adapt and withstand a wide range of shocks. Equally important in this context is agency – the capacity of individuals and institutions to creatively (re)generate prosperity in transformed and disrupted environments, recognising people not merely as beneficiaries, but as drivers of change (Alkire, 2025).

According to the author, resilience should not be understood solely as recovery, but also as transformation. While resilience is often defined as a return to a previous state (the status quo), Alkire emphasises a forward-looking and dynamic perspective. It is not enough to resist, absorb, adapt, and recover; societies must also learn, evolve, transform, and grow.

Culture is viewed as a lever for strengthening individual and societal resilience during periods of shock (Rakauskienė et al., 2025). Theory grounded in the measurement of culture is particularly relevant in the present period of disruptions, as one avenue for reinforcing human and societal resilience. During times of crisis and uncertainty, including the pandemic period, people around the world experienced anxiety and a lack of confidence in the future. The ability to overcome uncertainty and cope with difficulties depends on how prepared a society is to respond to an unknown future. Research into the impact of culture on the economy in periods of uncertainty can help lay the foundations for strengthening resilience.

3. Methodological approach

There are numerous theories of culture, among which two main approaches deserve particular attention. The first defines culture as a way of life and worldview characteristic of a specific nation or social group, encompassing all spheres of human life. The second approach understands culture as the totality of values and moral norms shared by a given society. Cultural values are not limited to individual objects – such as architectural monuments, sculpture, painting, literature, archaeology, craftsmanship, music, or folklore – but also include traditions, the transmission of knowledge, artistic skills, science, education, as well as the behaviour and customs of nations, social groups, and individuals.

From our perspective, culture is a broad concept: it encompasses systems of morality, ethics, and behaviour; beliefs and convictions shaped by a nation's mentality; ways of thinking and seeing the world; levels of education; the motivation of the population; and, ultimately, the quality of the elite – whether it thinks in global terms or, conversely, in narrow and everyday categories. Indeed, the very meaning of a nation's existence lies in its culture. A country and a nation are remembered not for their economy, but for their culture (Rakauskienė et al., 2022).

Culture is one of the fundamental factors determining the existence of nations, small ethnic groups, and states alike. It transcends time, linking the past, present, and future, leaving a lasting imprint on societal development and becoming a defining characteristic of states. From culture emerge values, identity, self-awareness, sovereignty, and the meaning of national existence, while simultaneously influencing the quality of life, social cohesion, and inclusiveness. Cultural and creative sectors contribute significantly to economic activity through employment, value creation, and international exchange.

In the twentieth century, **culture acquired an explicit economic dimension** and began to be treated as a commodity. British author and advocate of the creative economy John Howkins (2002), in his book "The creative

economy: How people make money from ideas", notes that by the end of the twentieth century, perceptions of work – and consequently of its outputs – had fundamentally changed. He highlights that in 1994, the United States generated USD 414 billion from books, films, music, television, and other copyright-protected products. Copyright-based industries surpassed clothing, chemicals, machinery, computers, and aircraft to become the country's leading export sector (Howkins, 2002). Based on these figures, Howkins leaves little doubt that in the twenty-first century the creative economy will become the dominant form of economic activity.

A 2020 article published in the business and finance magazine "World Finance", entitled "How culture can help explain economic development", discusses why **economic policies that disregard cultural context often fail**. One notable example is the Washington Consensus, a set of neoliberal policy prescriptions implemented in 1989, which did not deliver the anticipated prosperity in Latin America. Over the 30 years following its implementation, Latin America experienced annual per capita growth of less than 1%, compared with an average yearly growth rate of 2.6% during 1960–1981. This demonstrates that while specific institutional reforms may succeed in one country, they may fail in another, with cultural factors playing a decisive role.

Examining the interdisciplinary impact of creativity on business innovation, sociologist and economist Richard Florida, in his book "The Rise of the Creative Class" (2002), analyses how **creativity has become a central driving force of economic and social development** in contemporary cities and states. As the significance of the traditional working class in manufacturing and services has declined, an increasing share of economic value has been generated by a new social group – the **creative class**. This group consists of **individuals whose work is based on creativity, innovation, knowledge, and problem-solving**; in other words, whose primary tool is creative thinking. Florida argues that the economic success of cities and regions increasingly depends on their ability to attract, retain, and nurture creative individuals.

Florida identifies **three key factors (3T model) – talent, technology, and tolerance**. Cities that are open to diversity, characterised by high levels of education and robust innovation ecosystems, are the most attractive to the creative class and to investment and growth more broadly. Notably, Florida notes that **the creative class demonstrates greater resilience during economic crises**. Even during downturns, unemployment levels among this group remain lower than in other sectors, making their contribution to financial stability particularly significant. According to Florida, the creative class (which includes scientists, engineers, programmers, educators, researchers, artists, designers, media professionals, doctors, lawyers, financiers, and others) numbers 38 million people in the United States alone, accounting for 30% of the country's workforce. As a result, this group has had, and will continue to have, a substantial influence on our activities, values, aspirations, and everyday life.

A study prepared by KEA European Affairs (2006), "The Economy of Culture in Europe", significantly expanded the definition of the cultural and creative sector. It encompassed not only traditional cultural industries such as film, music, and publishing, but also media (print, radio, television), creative industries (fashion, interior, product design), cultural tourism, and traditional art forms, including performing and visual arts and heritage. The study argues that **culture and creativity are not secondary concerns, but vital drivers of both the economy and society**. It challenges the perception of culture as merely entertainment and demonstrates its direct and indirect contributions to economic growth, employment, innovation, and social integration.

The findings indicate, **first, that the economic strength of the cultural sector is substantial and growing faster than the economy as a whole**. The cultural and creative sectors outperform many traditional industries in terms of GDP contribution, turnover, and employment growth. **Second, culture and creativity are inseparably linked to information and communication technologies (ICT)** and local development, as creative content stimulates technological advancement, especially in the ICT field. **Third, culture itself is a key factor in attracting talent, investment, and tourism** to cities and regions. **Fourth, culture is closely linked to how societies bring people**

together and maintain social ties; it is a powerful instrument for empowering marginalised communities, strengthening self-confidence, and fostering cultural diversity.

Research indicates that **creativity extends beyond income generation and strengthens social capital, drives innovation, and plays a role in long-term economic transformation.** As noted in the Organisation for Economic Cooperation and Development (OECD, 2022) report, cultural and creative sectors play an essential role in local development by supporting employment, boosting incomes, and influencing the broader economy. These sectors foster innovation and serve as a source of creative skills, with strong linkages across supply and demand chains within the economy. In addition to their economic impact, these sectors also exert a substantial social influence, ranging from support for health and well-being to the promotion of social inclusion and the strengthening of local social capital.

Cultural and creative industries combine aesthetic value with economic returns: they generate income, increase value added, and create employment in cities and regions. **Creative individuals, working across almost all sectors of the economy, play a central role in innovation and help address future challenges.** Culture shapes how attractive places are to residents and visitors and also supports emotional and psychological well-being. In the aftermath of crises, achieving these benefits depends not only on restoring stability and enabling recovery but also on fully exploiting growth and development opportunities. This, in turn, calls for integrating culture across multiple policy domains rather than confining it to cultural policy **alone. Cultural funding should therefore be regarded as an economic and social investment rather than as expenditure** (OECD, 2022).

Creativity and innovation are overlapping concepts. Creativity refers to the generation of new ideas, whether this involves finding new ways to address existing problems or recognising new opportunities. Innovation, by contrast, involves the successful application of these ideas, transforming them into new products, services, or even new business models. Increasingly, both elements are becoming essential across all sectors of economic activity. **Creative industries are pioneers of the economy: a sector that has forged new paths, shaped approaches to creativity and innovation, and generated spillover benefits for the broader economy and society.** However, this process critically depends on effective transmission mechanisms that allow creative ideas and practices to diffuse more widely (The Work Foundation & Department for Culture, Media and Sport, 2007).

The United States government has long been receptive to academic insights and has supported a wide range of cultural development initiatives. According to the National Endowment for the Arts (2023), its strategic plan implementation report for the period 2018–2022 indicates that more than USD 773 billion was allocated to cultural activities during this timeframe.

In 2007, the European Union (EU) adopted its first cultural strategy. Currently, the EU is implementing the “Creative Europe” programme for 2021–2027, with a total budget of approximately EUR 2.4 billion – an increase of 63% compared to the 2014–2020 period. In 2022, the programme’s budget amounted to approximately EUR 385 million, including EUR 226 million for the audiovisual sector and EUR 35 million for cross-sectoral cooperation. The programme comprises **three strands: Culture, MEDIA (audiovisual), and Cross-sectoral.** The EU Work Plan for Culture 2023–2026 identifies **four priorities: empowering artists and cultural sectors, strengthening the role of culture in society, enhancing culture’s contribution to sustainability, and promoting internationalisation** (European Commission, 2021). Emphasis is placed on supporting innovation, digitalisation, artist mobility, and promoting inclusion and diversity. It is currently under consideration that, within the next EU Multiannual Financial Framework (MFF) for 2028–2034, culture could receive up to 2% of the total EU budget (approximately EUR 24 billion), as research suggests that every euro invested in culture can generate up to eleven euros in GDP (European Commission, 2024). Cultural financing thus extends beyond individual programmes to include components of national plans, external action funds, and regional development and cohesion funds.

It is important to emphasise that economists and governments increasingly acknowledge that GDP has ceased to function as a sufficient primary indicator of economic well-being. In response, the European Union is currently advancing the “Beyond GDP” initiative, whose objective is to develop indicators that are as clear and communicative as GDP, while offering a more comprehensive understanding of societal progress (European Commission, 2009, “Beyond GDP” initiative).

A number of internationally recognised methodologies exist for the study of culture, including those developed by Inglehart (1997), Hofstede (1980), Schwartz (2006), Trompenaars (2012), and others, which enable the measurement of the evolution of socio-cultural characteristics.

The Dutch scholar Geert Hofstede, while working at IBM, conducted a large-scale survey of IBM employees worldwide between 1968 and 1972 to identify national cultural differences affecting organisations. The study collected more than 116,000 questionnaires (Hofstede, 2001). Hofstede classified cultural differences according to four dimensions: power distance (the extent of inequality between authority and subordinates), uncertainty avoidance (the degree to which uncertainty and ambiguity are tolerated), individualism versus collectivism (the relative emphasis on individual versus group interests), and masculinity versus femininity (the distribution of emotional roles between genders). For each of these dimensions, Hofstede developed indices that enable cross-country comparisons. His methodology has been widely applied globally, particularly in management and marketing research. Even though there is continued debate about the reliability and limits of Hofstede's framework, as the first systematic attempt to quantify culture using sociological tools from an economic perspective, it is still analytically sound to examine selected statistical indicators derived from this approach.

This article analyses statistical data from selected areas of the cultural sector across European Union member states. From a methodological perspective, and in line with the EU's "Beyond GDP" framework, the study identifies the following criteria for assessing the cultural sector: employment in the cultural sector, the business environment, government expenditure on culture, overall trust in public institutions, the Human Development Index (HDI), and the correlations among these indicators. The purpose of examining these measures together is to identify key factors that may significantly influence societal resilience, sustainability, and long-term growth.

The study covers the period 2022–2024, which is particularly relevant for several reasons: (1) it best reflects current trends; (2) it avoids the distortion of cultural indicators caused by the global COVID-19 pandemic in 2020–2021; and (3) it captures the context shaped by the war in Ukraine and heightened geopolitical risks.

The analysis includes all 27 European Union member states, except for isolated cases where data for specific years or indicators are unavailable. Descriptive and comparative methods are employed to identify recurring patterns and structural discrepancies across countries, particularly when high GDP levels do not correspond to human development outcomes or socio-economic sustainability. The study seeks to uncover interdisciplinary linkages and long-term tendencies by filtering out short-term fluctuations and deliberately moving beyond GDP as the dominant indicator of socio-economic progress.

4. Key trends in cultural dimensions across EU Member States (Empirical Findings)

The empirical analysis covers employment in the cultural sector, cultural enterprises, and government expenditure on culture, drawing on the latest Eurostat data. To provide a broader analytical perspective, the study is complemented by annual data on trust in government published by the Organisation for Economic Cooperation and Development (OECD, n.d.) and Human Development Index data from the United Nations Development Programme (UNDP, n.d.). The analysis aims to identify regularities and long-term trends, and to capture dimensions of socio-economic development that extend beyond GDP indicators.

4.1. Employment in the Cultural Sector

Based on the Eurostat database (Eurostat, 2025), two main trends in cultural employment across EU countries can be identified in 2024:

- Across the EU, 7.9 million people were employed in the cultural sector, accounting for 3.8% of total employment. Although this share is relatively modest, it has remained stable over a long period.
- In virtually all EU countries and across all cultural occupations, the majority of workers have a tertiary education (62% in the cultural sector, compared to 39% in total employment). As a rule, culture is a sector characterised by a high level of educational attainment and can, to some extent, be described as an elite field.

Employment dynamics in the cultural sector across EU countries during the 2015-2024 period show gradual and steady growth (excluding the pandemic period). In 2015, cultural employment accounted for 3.6% of total employment, rising to 3.8% in 2024. In 2024, the lowest share of cultural employment was recorded in Romania (1.6%), while the highest was observed in the Netherlands (5.3%). Fig. 1 presents a detailed overview of country-level indicators.

Cultural employment, 2021 to 2024

	Number				Share of total employment				Change in the number of employees 2023 - 2024	Change in the share of total employment 2023 - 2024
	(thousands)				(%)					
	2021	2022	2023	2024	2021	2022	2023	2024		
EU	7 408	7 743	7 785	7 932	3.7	3.8	3.8	3.8	1.9	0.0
Belgium	210	210	202	198	4.3	4.2	4.0	3.9	-1.9	-0.1
Bulgaria (*)	86	80	81	83	3.0	2.7	2.8	2.8	3.1	0.0
Czechia	210	194	205	205	4.0	3.8	4.0	3.9	0.0	-0.1
Denmark (*)	132	135	138	137	4.6	4.5	4.6	4.5	-0.1	-0.1
Germany	1 615	1 705	1 685	1 673	3.9	4.0	3.9	3.9	-0.7	0.0
Estonia	32	31	36	35	4.9	4.5	5.1	5.0	-2.5	-0.1
Ireland	73	84	85	80	3.0	3.3	3.2	2.9	-6.0	-0.3
Greece	144	145	128	125	3.7	3.5	3.1	2.9	-2.2	-0.2
Spain	725	735	755	799	3.7	3.6	3.6	3.7	5.8	0.1
France	1 088	1 142	1 165	1 274	3.9	4.0	4.1	4.4	9.4	0.3
Croatia (*)	54	51	55	58	3.4	3.2	3.4	3.4	4.7	0.0
Italy	771	815	825	843	3.4	3.5	3.5	3.5	2.1	0.0
Cyprus	16	18	17	17	3.5	3.9	3.5	3.5	3.6	0.0
Latvia	36	35	37	38	4.2	4.0	4.1	4.3	3.8	0.2
Lithuania	54	58	58	61	4.0	4.1	4.0	4.1	3.8	0.1
Luxembourg	13	15	17	17	4.3	4.8	5.2	5.1	-0.6	-0.1
Hungary	167	164	171	186	3.6	3.5	3.6	3.9	9.0	0.3
Malta	12	13	13	14	4.4	4.4	4.2	4.3	8.7	0.1
Netherlands	471	521	514	523	5.1	5.4	5.3	5.3	1.9	0.0
Austria	170	176	184	189	3.9	4.0	4.1	4.2	2.6	0.1
Poland	567	604	623	597	3.3	3.5	3.6	3.5	-4.1	-0.1
Portugal	178	193	201	197	3.7	3.9	4.0	3.9	-2.0	-0.1
Romania	111	117	112	124	1.4	1.5	1.5	1.6	10.4	0.1
Slovenia	46	45	42	43	4.7	4.6	4.2	4.3	2.9	0.1
Slovakia	75	76	71	75	2.9	2.9	2.7	2.9	6.0	0.2
Finland	119	123	119	111	4.6	4.6	4.5	4.2	-7.1	-0.3
Sweden	232	260	249	230	4.5	4.9	4.7	4.3	-7.7	-0.4
Iceland	11	12	14	12	5.8	5.6	6.1	5.3	-9.6	-0.8
Norway	113	123	129	119	4.0	4.3	4.4	4.1	-7.3	-0.3
Switzerland	232	223	227	236	4.9	4.7	4.7	4.8	4.2	0.1
Serbia (*)	93	102	102	107	3.4	3.6	3.6	3.7	5.0	0.1
Türkiye	708	770	831	893	2.5	2.5	2.6	2.7	7.4	0.1

Figure 1. Employment in the cultural sector in EU countries, 2021–2024

Source: Eurostat (2025).

In 2024, the gender gap in cultural employment reached its lowest level (Eurostat, 2025), with 4.0 million men and 3.9 million women employed in the sector. A long-standing and stable trend is the dominance of employment in creative, artistic, and entertainment activities, which accounted for 1.12 million employees. The most pronounced growth was observed in fields such as design, photography, broadcasting, and audiovisual production. At the same

time, a gradual decline was recorded in publishing, sound recording reproduction, and programme and broadcasting activities.

Individuals employed in the cultural sector (aged 15-74) are predominantly highly educated (Fig. 2). In 2024, 62% of cultural workers held tertiary education qualifications, compared to 56% in 2015 (Eurostat, 2025). Not only did the share of tertiary-educated workers increase, but the proportion of those with only secondary education declined in the cultural sector – from 9% in 2015 to 7% in 2024. The share of tertiary-educated employees in culture (62%) is 23 percentage points higher than in overall employment (39%).

Cultural and total employment by sex, age and educational attainment, EU, 2024

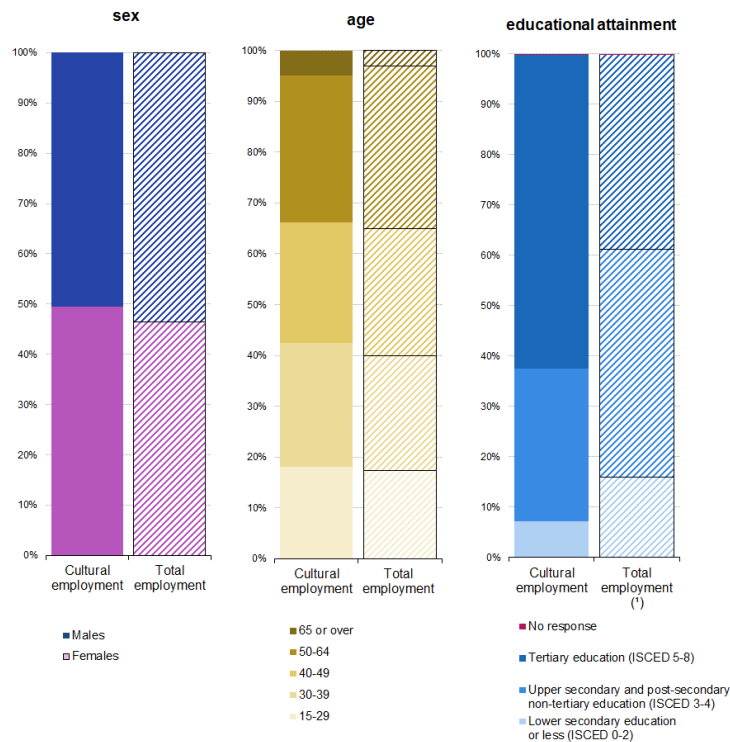


Figure 2. Cultural and total employment by sex, age and educational attainment, 2024

Source: Eurostat (2025)

Education is one of the most distinctive indicators characterising employment in the cultural sector. This is unsurprising, as many cultural professions require years of formal education (e.g., architects, journalists, writers, and composers) as well as continuous skills development. In 2024, more than half of cultural sector employees in all EU countries held tertiary education qualifications. In nine EU countries, this share exceeded two-thirds, including Lithuania (73%). The lowest shares were recorded in Slovakia, Czechia, and Italy (52%), while the highest was observed in Luxembourg (84%). A decade earlier, only five EU countries reported such high proportions. This situation differs markedly from overall employment patterns, where the share of tertiary-educated workers reaches 50% in only eleven EU countries (in 2015, this was the case only in Ireland).

4.2. Business in the cultural sector

When assessing business activity in the cultural sector, a clear and consistent trend emerges: countries with the largest number of cultural enterprises tend to have long-standing historical and cultural traditions. In 2022, more than half (51.5%) of all cultural enterprises in the EU were located in four countries: France (17.5%), Italy (12.5%), the Netherlands (12.0%), and Spain (9.4%).

The share of cultural enterprises within the business economy (Fig. 3) was particularly high in the Netherlands (11.0%) and Sweden (10.8%), while the lowest shares were recorded in Bulgaria and Slovakia (both 3.1%).

According to 2022 data, 2.03 million cultural enterprises operated in the EU, accounting for 6.3% of all businesses in the economy. The cultural sector generated approximately EUR 199 billion in value added, representing 2.0% of total business economy value added. Net turnover in the sector amounted to roughly EUR 503 billion, or 1.3% of total EU business economy turnover.

The highest share of value added in the national economy was recorded in Cyprus (5.4%) and Finland (2.8%), while the highest share of turnover was observed in Cyprus (5.4%), France (1.8%), and Sweden (1.8%).

Main indicators for cultural enterprises, 2022

	Number of enterprises		Value added		Net turnover	
	(number)	(%, share of total in industry, construction and market services)	(€ million)	(%, share of total in industry, construction and market services)	(€ million)	(%, share of total in industry, construction and market services)
EU	2 026 361	6.3	198 519	2.0	502 987	1.3
Belgium	61 682	6.9	5 755	1.5	18 060	1.1
Bulgaria	12 389	3.1	708	1.4	1 961	0.8
Czechia	70 082	5.4	2 565	1.7	8 709	1.1
Denmark	18 215	4.8	4 997	2.2	13 657	1.6
Germany	175 480	5.6	52 455	1.8	113 501	1.1
Estonia	9 658	6.8	372	1.8	1 123	1.1
Ireland	25 862	6.6	6 625	1.6	14 316	1.1
Greece	43 308	4.7	1 542	1.7	4 464	1.1
Spain	190 762	5.5	16 078	2.1	40 718	1.4
France	355 309	7.2	34 622	2.4	96 421	1.8
Croatia	12 934	5.7	731	2.0	2 076	1.4
Italy (*)	253 614	5.5	22 847	2.1	60 619	1.4
Cyprus (*)	4 662	5.3	965	5.4	3 508	5.4
Latvia	9 158	6.3	371	1.9	978	1.1
Lithuania	29 246	8.9	561	1.4	1 599	1.0
Luxembourg	2 623	5.6	566	1.1	2 054	0.6
Hungary	65 506	6.7	1 402	1.5	5 582	1.2
Malta	3 883	7.5	323	2.5	741	1.5
Netherlands	243 059	11.0	14 923	2.2	34 369	1.3
Austria	47 143	8.1	5 123	1.8	12 747	1.2
Poland	115 735	4.3	6 296	1.7	19 155	1.1
Portugal	69 710	5.2	2 673	1.9	7 067	1.3
Romania (*)	46 779	4.8	2 082	1.6	4 685	0.9
Slovenia	17 426	8.9	823	2.3	2 083	1.3
Slovakia	19 633	3.1	606	1.0	2 271	0.8
Finland	31 481	7.1	3 748	2.8	9 213	1.7
Sweden	90 497	10.8	8 708	2.3	21 243	1.8
Iceland	5 433	12.1	343	2.2	810	1.8
Norway	57 999	12.7	4 380	1.0	10 275	1.1
Switzerland (*)	11 086	6.3	12 382	2.7	25 828	0.8
Bosnia and Herzegovina	2 427	3.0	243	1.8	478	0.9
North Macedonia	2 677	4.0	87	1.2	257	0.7
Albania	3 749	3.3	176	2.5	392	1.4
Serbia	6 504	3.2	731	2.1	1 965	1.3

Figure 3. Main indicators for cultural enterprises, 2022

Source: Eurostat (2025).

The largest share of value added in the cultural sector was generated by small and medium-sized enterprises (SMEs). SMEs employed the majority of workers across most cultural activities, except programming and broadcasting, where two-thirds of employees (67.3%) worked in large enterprises. Micro-enterprises (fewer than 10 employees) employed the majority of workers in photography (89.5%), specialised design (82.4%), creative, artistic, and

entertainment activities (78.0%), and translation and interpretation (74.1%). The largest share of cultural enterprises (27.4%) operated in creative, artistic, and entertainment activities (Fig. 4). Architecture (16.5%) and specialised design (13.5%) also accounted for significant proportions.

Number of cultural enterprises, by broad heading, EU, 2022
(%)

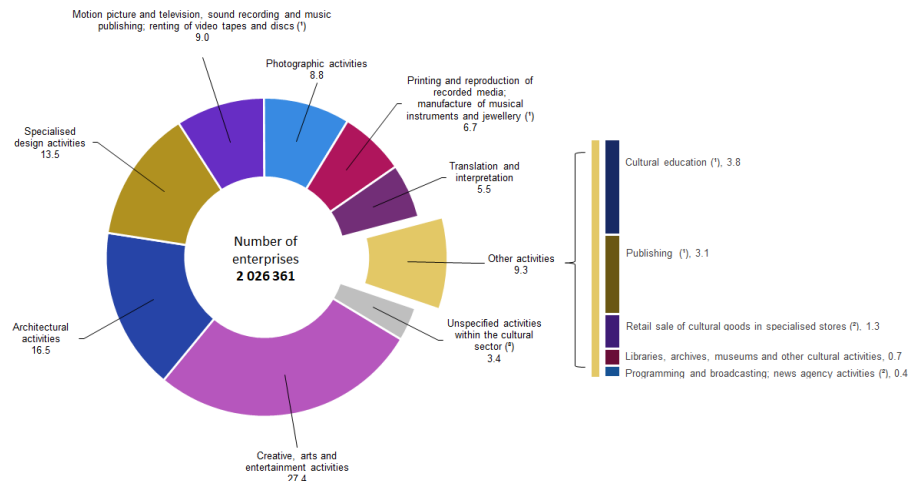


Figure 4. Number of cultural enterprises, by broad heading, EU countries, 2022

Source: Eurostat (2025).

The highest value added (Fig. 5) was generated by publishing (14.9%), architecture (14.6%), motion picture and television activities, sound recording and music publishing (14.2%), as well as printing and reproduction of recorded media; manufacture of musical instruments and jewellery (13.5%).

Value added for the cultural sector, by broad heading, EU, 2022
(%)

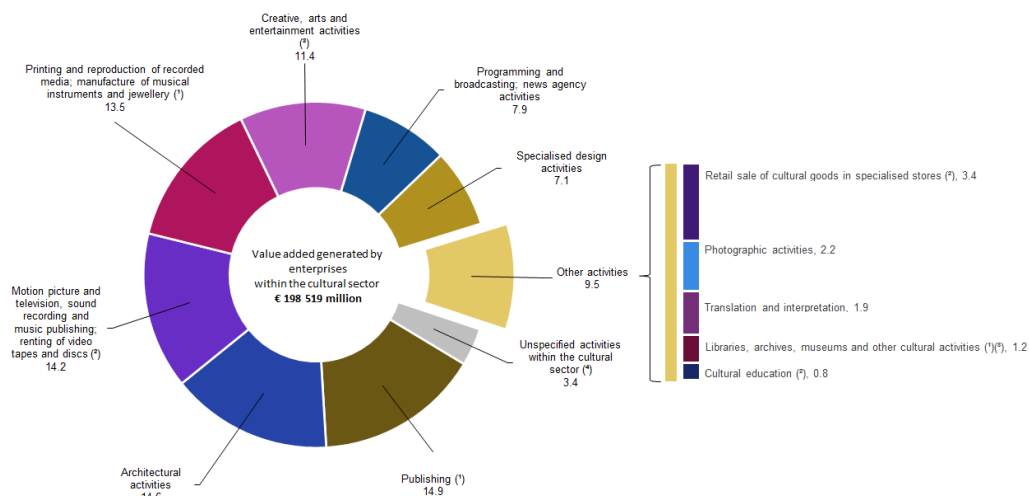


Figure 5. Value added for the cultural sector, by broad heading, EU countries, 2022

Source: Eurostat (2025).

Programming and broadcasting; news agency activities, while accounting for only 0.4% of all cultural enterprises, generated 7.9% of total sector value added (EUR 15.8 billion). By contrast, cultural education, which represented 3.8% of enterprises, generated only 0.8% of value added (EUR 1.6 billion).

EU Member States' shares in the EU total for main indicators concerning the cultural sector, 2022
(%, share of EU total)

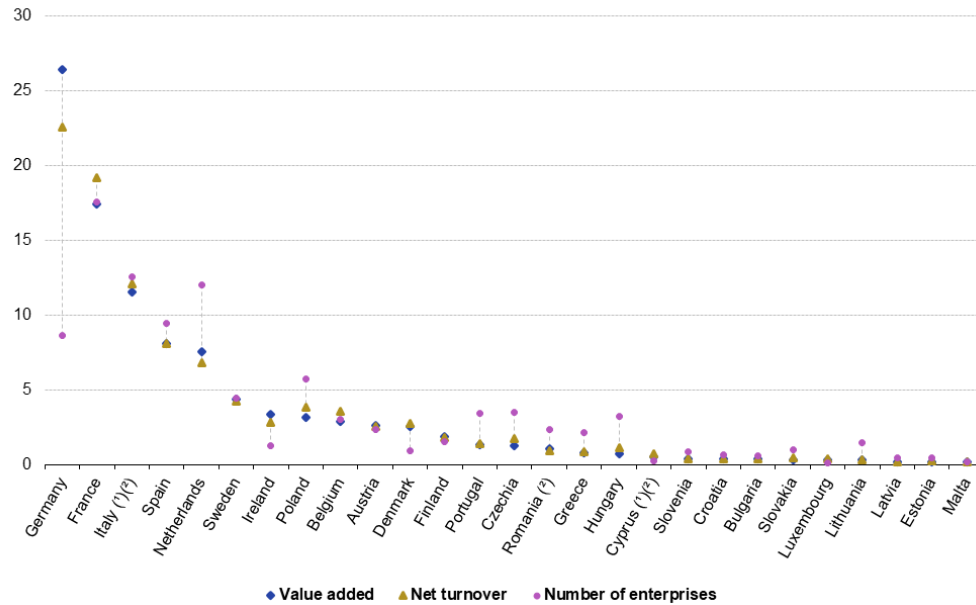


Figure 6. Shares of EU Member States in total EU cultural sector indicators, 2022

Source: Eurostat (2025).

The EU countries generating the most significant shares of value added (Fig. 6 above) were Germany (26.4%), France (17.4%), and Italy (11.5%). Together, these three countries accounted for 55.3% of total value added and 53.9% of cultural sector turnover.

4.3. Government expenditure on culture

It is important to note that a high proportional share of government expenditure on culture does not always directly correlate with higher levels of public cultural participation. However, such expenditure can be interpreted as a timely recognition of the potential for strengthening a country's economic and social capital. Naturally, countries with a strong and long-standing historical and cultural heritage, or where the private sector has already successfully developed cultural activities, require less direct government involvement than countries that are only beginning to recognise and embrace the importance of culture for overall national development.

In 2023, total government expenditure on cultural services in the EU amounted to EUR 81.1 billion (EUR 74.3 billion in 2022). This represented 1.0% of total general government expenditure in the EU (Fig. 7). The largest share was allocated to broadcasting and publishing services, amounting to EUR 35.0 billion (0.4% of total general government expenditure). Government expenditure on cultural services accounted for 0.5% of GDP, a proportion that has remained stable at the EU level since 2001.

General government expenditure on cultural services, broadcasting and publishing services, 2023 (% of total expenditure)

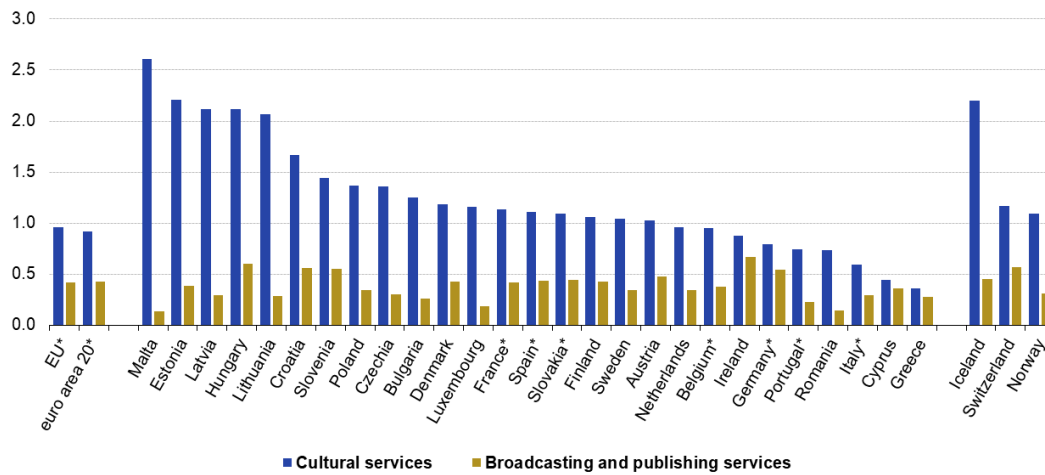


Figure 7. General government expenditure on culture services, broadcasting and publishing services, 2023 (% of total expenditure)

Source: Eurostat (2025)

Between 2022 and 2023, the share of GDP allocated to cultural services (Fig. 8) remained stable in most Member States, increasing slightly in five countries: Bulgaria, Estonia, Croatia, Malta, and Finland. The highest expenditure shares were recorded in Malta (2.6%), Estonia (2.2%), Latvia, Hungary, and Lithuania (2.1% each). The lowest shares were observed in Greece and Cyprus (0.4% each) and Italy (0.6%).

General government expenditure on cultural services, 2022 and 2023

	€ million		% of GDP	
	2022	2023	2022	2023
EU*	74 311	81 106	0.5	0.5
euro area 20*	60 843	66 047	0.4	0.5
Belgium*	2 835	3 013	0.5	0.5
Bulgaria	317	460	0.4	0.5
Czechia	1 699	1 890	0.6	0.6
Denmark	2 110	2 093	0.6	0.6
Germany*	14 510	16 023	0.4	0.4
Estonia	315	365	0.9	1.0
Ireland	976	1 015	0.2	0.2
Greece	333	401	0.2	0.2
Spain*	6 818	7 539	0.5	0.5
France*	16 978	18 183	0.6	0.6
Croatia	453	608	0.7	0.8
Italy*	6 482	6 763	0.3	0.3
Cyprus	49	58	0.2	0.2
Latvia	341	364	0.9	0.9
Lithuania	494	570	0.7	0.8
Luxembourg	412	440	0.5	0.6
Hungary	1 839	2 061	1.1	1.0
Malta	150	196	0.8	1.0
Netherlands	4 395	4 425	0.4	0.4
Austria	2 219	2 560	0.5	0.5
Poland	3 782	4 826	0.6	0.6
Portugal*	723	837	0.3	0.3
Romania	820	956	0.3	0.3
Slovenia	390	428	0.7	0.7
Slovakia*	573	649	0.5	0.5
Sweden	1 397	1 611	0.5	0.6
Iceland	2 900	2 773	0.5	0.5
Norway	1 397	1 611	1.1	1.0
Switzerland	2 900	2 773	0.5	0.5

Figure 8. General government expenditure on cultural services, 2022–2023

Source: Eurostat (2025)

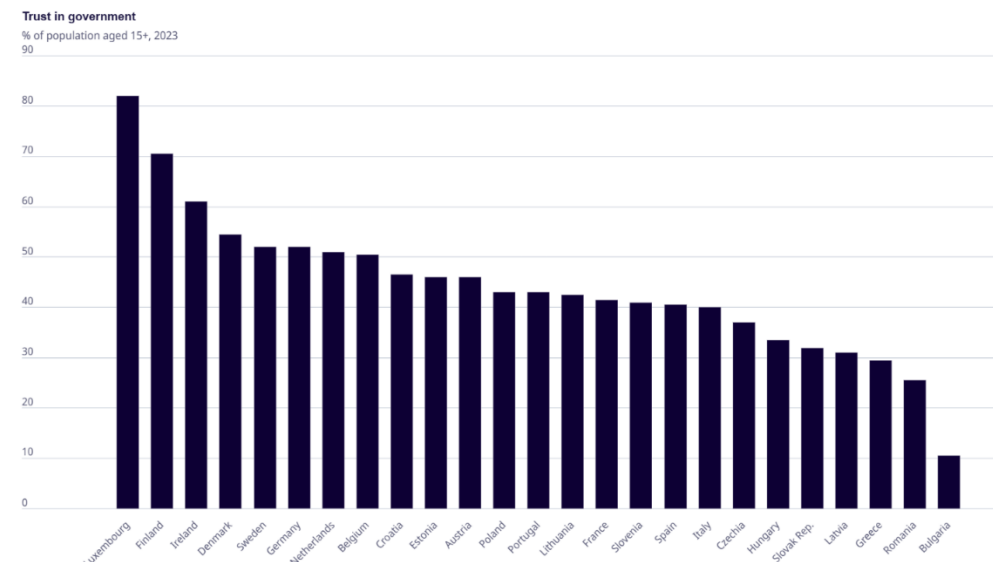
Although governments invest consistently in culture, the proportion of these investments (relative to GDP or total expenditure) does not always translate directly or proportionally into public cultural activity. This indicates that policy implementation and broader contextual conditions are as important as the scale of funding itself.

4.4. Trust in government and the significance of the Human Development Index

Raquel Fernández, a professor at New York University who studies the relationship between culture and the economy, notes that modern neoclassical economics, until recently, tended to ignore the role of culture in explaining economic outcomes, largely because it was difficult to clearly disentangle the effects of culture from those of institutions and traditional economic variables (Fernández, 2008). Today, however, as ways of addressing this challenge have become better understood, a new task has emerged: the collection of objective empirical evidence. Fernández also suggests drawing on sociological survey data alongside historical case evidence.

To understand the role of culture in the context of threats, the impact of various crises, and countries' recovery processes, it is important to adopt a broader perspective and to look for correlations by comparing not only GDP, but also indicators such as trust in government (public support being a critical factor for public authorities when implementing decisions, particularly those with long-term consequences) and the HDI. This approach rests on the assumption that culture influences not so much GDP directly. Instead, it shapes behaviour, innovation, future-oriented investment, and collective priorities and values, trust, tolerance, long-term orientation, and a wide range of other "soft" dimensions.

Based on the OECD survey on trust in public institutions (OECD, n.d.), the 2023 data (Fig. 9) show that trust indicators reflect both economic and cultural factors. In other words, the **highest levels of trust are expressed by citizens of countries whose cultural indicators and economic conditions rank among the strongest. A similar pattern is observed in countries where these indicators are the weakest.**



Note: Data for Malta and Cyprus are not available

Figure 9. Trust in government in EU countries, 2023

Source: OECD (n.d.)

Based on the data reviewed, it is not possible to claim that this represents a direct effect of culture; such a conclusion would require a more in-depth analysis. Nevertheless, it is evident that these elements are closely interconnected, and their influence cannot be disregarded.

Global threats primarily affect systems of human development directly, with economic factors operating alongside them. For this reason, it is appropriate to include the HDI as an analytical indicator when seeking to understand not only immediate economic outcomes, but also the long-term capacity of societies to strengthen resilience and to create, sustain, transform, and improve the quality of life, even in the aftermath of periods of global crisis. The HDI incorporates indicators of healthy living (life expectancy at birth), knowledge (literacy and levels of education), and standards of living (gross national income per capita) (UNDP, 2023).

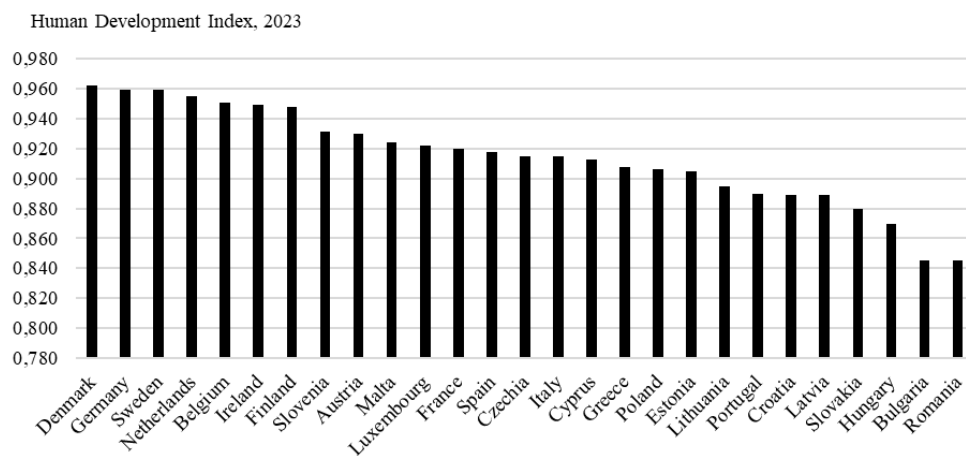


Figure 10. Human Development Index (HDI) in the EU, 2023

Source: compiled by the author based on the UNDP Human Development Index database.

As with trust in public institutions, similar patterns can be observed with respect to the HDI (Fig. 10 above). **Quality of life is higher in more advanced countries, as reflected in business activity, employment, and value creation in the cultural sector.** It is also evident that countries with lower HDI levels allocate a larger share of government expenditure to the cultural sector.

This may be interpreted as a forward-looking, long-term approach and a strategic investment, in which stronger public support for culture is an essential factor in strengthening national stability, the well-being of society as a whole, and trust in government – key conditions for resilience and enabling recovery and sustained growth.

5. Results

When summarising all the data, it is analytically valuable to examine the indicators jointly, as an integrated whole, rather than as isolated components (Fig. 11).

Metric:	Real GDP per capita	Culture employment, % of total	Cultural enterprises value added, % share of total	Cultural enterprises, % share of total	Government expenditure on cultural services, % of total	Trust in parliament, % of population aged 15+	Human development index			
Source:	Eurostat	Eurostat	Eurostat	Eurostat	Eurostat	OECD	UNDP			
Data year:	2023	2023	2022	2022	2023	2023	2023			
AVERAGE	33993	3,9%	1,98%	6,3%	1,24%	44,1%	0,915	Above average	Below average	N/A
Austria	45 670	4,1%	1,79%	8,1%	1,03%	46,0%	0,930	5	2	
Belgium	44 230	4,0%	1,49%	6,9%	0,95%	50,5%	0,951	5	2	
Bulgaria	10 950	2,8%	1,42%	3,1%	1,25%	10,5%	0,845	1	6	
Cyprus	29 200	3,5%	5,40%	5,3%	0,44%	N/A	0,913	1	5	1
Croatia	16 490	3,4%	2,03%	5,7%	1,67%	46,5%	0,889	3	4	
Czechia	21 680	4,0%	1,68%	5,4%	1,36%	37,0%	0,915	3	4	
Denmark	56 470	4,6%	2,20%	4,8%	1,19%	54,5%	0,962	5	2	
Estonia	21 210	5,1%	1,77%	6,8%	2,21%	46,0%	0,905	4	3	
Finland	43 280	4,5%	2,80%	7,1%	1,06%	70,5%	0,948	6	1	
France	37 760	4,1%	2,37%	7,2%	1,13%	41,5%	0,920	5	2	
Germany	43 450	3,9%	1,82%	5,6%	0,79%	52,0%	0,959	4	3	
Greece	18 600	3,1%	1,70%	4,7%	0,36%	29,5%	0,908	0	7	
Hungary	16 050	3,6%	1,45%	6,7%	2,12%	33,5%	0,870	5	2	
Ireland	87 810	3,2%	1,56%	6,6%	0,88%	61,0%	0,949	4	3	
Italy	32 640	3,5%	2,10%	5,5%	0,59%	40,0%	0,915	2	5	
Latvia	16 770	4,1%	1,86%	6,3%	2,12%	31,0%	0,889	2	5	
Lithuania	19 220	4,0%	1,44%	8,9%	2,07%	42,5%	0,895	3	4	
Luxembourg	102 250	5,2%	1,08%	5,6%	1,16%	82,0%	0,922	4	3	
Malta	33 380	4,2%	2,50%	7,5%	2,61%	N/A	0,924	5	1	1
Netherlands	50 660	5,3%	2,17%	11,0%	0,96%	51,0%	0,955	6	1	
Poland	15 950	3,6%	1,65%	4,3%	1,37%	43,0%	0,906	1	6	
Portugal	22 130	4,0%	1,88%	5,2%	0,74%	43,0%	0,890	1	6	
Romania	12 970	1,5%	1,60%	4,8%	0,73%	25,5%	0,845	0	7	
Slovakia	18 750	2,7%	1,04%	3,1%	1,09%	32,0%	0,880	0	7	
Slovenia	25 120	4,2%	2,25%	8,9%	1,44%	41,0%	0,931	5	2	
Spain	27 150	3,6%	2,07%	5,5%	1,11%	40,5%	0,918	2	5	
Sweden	47 960	4,7%	2,33%	10,8%	1,04%	52,0%	0,959	6	0	

Figure 11. Data on indicators significant for socio-economic progress in EU countries, 2022–2023

Source: compiled by the author based on Eurostat, OECD, and UNDP databases.

Such a comparative reading of the data makes it possible to identify a number of parallels, interconnections, and recurring patterns:

- Cultural indicators show a clear relationship with HDI and trust in government, but do not consistently correlate with GDP. This observation reinforces a growing consensus in recent scholarship that GDP is an insufficient indicator of socio-economic progress. It fails to capture long-term perspectives and does not reflect the influence of culture on economic performance, thereby obscuring a country's growth and development potential. This shortcoming is evident in the context of global threats, where GDP offers little insight into sustainability or resilience and cannot serve as a reliable basis for evaluating societal recovery. Culture is a far broader phenomenon: it influences more than material living conditions and plays a significant role in shaping institutional trust, social welfare, and overall quality of life.
- Countries such as Finland, Sweden, and Denmark – representative of the Nordic model – exhibit consistently high values across cultural employment, HDI, and trust in government. These cases illustrate that culture can legitimately be understood as a system of social trust and a platform for political capital.
- Trust in government shows a clear correlation with GDP: countries with trust levels above the EU average also tend to record the highest GDP indicators (with Portugal as a notable exception). This points to strong linkages between social and institutional capital and highlights their importance for economic progress.

d) Governments in economically weaker countries tend to allocate a larger share of public expenditure to the cultural sector. This, in turn, directly supports the vitality of the cultural ecosystem despite lower GDP levels. The Baltic states (Lithuania, Latvia, and Estonia), as well as Malta, stand out for relatively high public spending on culture despite medium or lower GDP levels and comparatively high HDI scores. All of these countries rank within the top 40 globally among the 193 countries assessed by HDI.

e) Further evidence that high GDP does not necessarily correspond to a strong cultural sector can be found in countries such as Luxembourg and Ireland. While GDP per capita in these countries is exceptionally high, the value added generated by the cultural sector is relatively modest and public spending on culture remains close to the EU average. This represents a well-known distortion in economic assessments, where factors such as the dominance of the financial sector, multinational profit shifting, investment funds, tax regimes, cross-border labour flows, and other structural elements significantly inflate GDP per capita figures.

f) Data from Hungary, Romania, and Bulgaria indicate that although governments in these countries allocate a relatively high share of expenditure to culture, this does not translate into higher trust in public institutions, and HDI levels remain below the EU average. This may point to shortcomings in the quality of cultural sector empowerment, excessive political fragmentation, or a cultural ecosystem that lacks institutional credibility and public trust.

g) From a geographical perspective, a distinct pattern emerges in Southern Europe (Spain, Portugal, Italy, and Greece). In these countries, cultural employment is moderate, and the value generated by the sector remains stable. Yet, trust in parliament is among the lowest in the EU, and HDI levels lag behind those observed in Northern Europe. Historically and culturally, these societies possess long-standing traditions and strong global recognition, and their cultural potential – along with highly developed tourism sectors – is unquestionable. However, the evidence suggests that institutional effectiveness in nurturing and strengthening the cultural sector remains insufficient.

h) Overall, this form of data comparison offers a broader analytical perspective and helps clarify the role of culture as an essential connecting factor between economic development and social well-being. Culture contributes to strengthening trust, shaping quality of life, and informing long-term national strategies, including the ability to withstand crises and support recovery and sustained development.

Conclusions

1. Strengthening the relationship between culture and the economy should be a strategic, foundational priority in pursuing social and economic progress. The question of why some countries achieve sustained development while others fall behind is increasingly addressed through the contemporary concept of path dependence. Countries striving for success, self-realisation, and material prosperity may exit a previous stage of development yet fail to remain on a trajectory of progress, repeatedly reverting to established paths. This phenomenon is driven less by economic growth rates or political systems than by values and behavioural norms. Culture represents one of a country's key strengths and comparative advantages: it is a source of values and identity, a foundation of collective self-awareness, and an essential dimension of national and human existence. At the same time, culture contributes to improving the quality of life, strengthening social cohesion, and fostering inclusion. The cultural and creative sectors can therefore justifiably be viewed as accelerators of innovation and, consequently, of socio-economic progress – through job creation, income generation, and the gradual replacement of traditional economic drivers with new ones that exert a broader impact on societal sustainability, resilience, and long-term development.

2. Culture should be treated as a priority area of public policy and embedded within a long-term strategic framework, integrated across multiple policy domains. Its contribution cannot be measured solely through GDP or

through direct economic effects in specific sectors. Recognising culture as one of the core and strategic pillars of state policy is essential for achieving sustainable growth, maintaining development gains, and expanding the tools available to enhance resilience and sustainability. In this sense, culture functions not only as a mechanism for recovery and stabilisation in times of crisis, but also as a means of breaking free from entrenched development paths and securing a durable trajectory of comprehensive progress. Empirical evidence indicates that cultural indicators are more closely associated with long-term development outcomes, such as human development and trust in public institutions. The impact of culture usually develops over time through gradual shifts in behaviour, trust levels, and the quality of institutions, rather than through short-term economic effects. This further supports the view that GDP alone is not an adequate measure of socio-economic progress, especially during global crises.

3. Two main methodological approaches can be distinguished in the study of culture. The first conceptualises culture as a way of life and worldview characteristic of a particular nation or social group, encompassing all spheres of human activity. The second understands culture as the set of values and moral norms shared by a given society. Culture is a broad and multidimensional concept. It encompasses systems of morality and ethics, patterns of behaviour, beliefs shaped by national mentality, modes of thinking, attitudes toward the world, levels of education, societal motivation, and, ultimately, the quality of elites – whether they operate with a global, strategic outlook or remain confined to narrow, short-term perspectives. In this sense, a nation's existence lies in its culture. Countries and nations are remembered not for their economies, but for their cultures. Culture is one of the fundamental factors shaping the existence of nations, small ethnic groups, and states alike. From culture emerge values, identity, self-awareness, sovereignty, and a sense of national purpose, while simultaneously influencing quality of life, social cohesion, and inclusion. Cultural and creative sectors make a significant contribution to economic activity through employment, value creation, and GDP growth. Across developed societies, substantial public resources are allocated to culture. Unlike in business, however, rapid returns should not be expected. The effectiveness of cultural investment is oriented toward the long term, with its returns manifesting in both the material and spiritual dimensions of human development, strengthening society's moral and intellectual potential. The methodological objective of this study was to identify regularities and long-term trends and, by applying the EU's Beyond GDP framework, to capture dimensions of development that lie beyond conventional economic indicators. The empirical analysis of EU member states draws on data on cultural employment, cultural enterprises, and public expenditure on culture from Eurostat. To provide a broader analytical perspective, the study was complemented by indicators of trust in government from the Organisation for Economic Cooperation and Development and Human Development Index data from the United Nations Development Programme. Together, these indicators allow for a more comprehensive assessment of the role of culture in shaping long-term socio-economic resilience and development beyond GDP.

4. A comparative analysis of EU member states reveals that cultural employment, the structure and performance of cultural enterprises, and consistent public investment in culture contribute to higher levels of institutional trust and human development. These relationships are most evident in countries where culture is integrated across policy domains rather than treated as a secondary or merely symbolic area of public policy. The findings also indicate that public expenditure on culture should not be assessed through the lens of short-term economic returns. While increased cultural funding does not automatically translate into a stronger cultural sector or produce immediate measurable effects, it plays a vital role in reinforcing social cohesion, strengthening trust in public institutions, and supporting long-term development potential. Higher levels of institutional trust coincide with well-developed cultural environments and stronger human development outcomes. In contrast, low trust weakens the impact of cultural investment and limits its wider effect on society.

5. Overall, the study's results support the conclusion that culture serves as a critical lever linking economic development with social well-being, shaping value orientations, institutional quality, and societies' capacity to commit to long-term goals. Its influence manifests primarily through institutional trust, social cohesion, and quality of life, rather than through immediate or direct economic returns. In the context of escalating global threats – such

as economic instability, geopolitical tensions, and growing social fragmentation — culture should be recognised as a central component of long-term development strategies and a key resource for enhancing resilience, supporting recovery, and ensuring sustainable growth.

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IMPORTANCE OF MORAL PUBLIC SERVICE DELIVERY IN THE AGE OF ARTIFICIAL INTELLIGENCE**Maxhobandile Ndamase ^{1*}, Yamkela Ntando ², Talente Ncama ³**^{1*,2,3} Walter Sisulu University, South AfricaE-mails: ^{1*} mndamase@wsu.ac.za (Corresponding author); ² yntando@wsu.ac.za; ³ tncama@wsu.ac.za

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Abstract. Moral public service delivery is becoming increasingly important as a strategic component of public service competence, as the public sector adopts artificial intelligence (AI), transforming the skills required for efficient governance. This paper critically examines the significance of Moral public service delivery in the AI era and its implications for the transformation of public service in South Africa. The study uses a qualitative secondary research approach to analyse current literature, policy papers, and institutional reports released between 2019 and 2025, drawing on theories of human capital and socio-technical systems. The findings demonstrate that while AI increases productivity by automating repetitive tasks, it also increases the demand for skills that are uniquely human, such as communication, emotional intelligence, ethical reasoning, flexibility and cooperative problem-solving. It has been discovered that soft skills significantly enhance service quality, foster public trust and ethical governance, promote a positive organisational culture, facilitate human-AI collaboration, and encourage creativity and lifelong learning. According to the study's findings, Moral public service delivery is essential for facilitating citizen-centred, moral and humanised public service delivery in the digital age, rather than being only supplementary qualities. As a result, it recommends that moral service delivery be incorporated into public sector competency frameworks, that training be redesigned to prioritise experiential and behavioural learning, that ethical and adaptive leadership be encouraged, and that human-centred AI implementation strategies be used. The paper notes the limitations of using secondary data and recommends further empirical research to confirm the applicability of the framework. Building a competent, creative, and people-focused public service equipped for the AI-driven future requires strengthening moral competence in public service delivery.

Keywords: moral public service delivery; artificial intelligence (AI); public service transformation; digital governance; public service

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1. Introduction

The skills required in contemporary public service are evolving as artificial intelligence (AI) advances rapidly. Artificial Intelligence is being utilised by governments worldwide to enhance productivity, automate repetitive tasks, increase transparency, facilitate better decision-making, and deliver services tailored to their citizens' needs (Alshahrani et al., 2024). Roles in the public sector are being redefined by technologies such as digital self-service platforms, virtual assistants, robotic process automation, machine learning, natural language processing, and predictive analytics (Al-Besher & Kumar, 2022; Malatjie et al., 2024; Feni & Lukamba, 2025). Ciaschi and Barone (2024) argue that moral public service delivery, a distinctively human quality, is becoming increasingly essential for efficient administration as AI assumes monotonous, data-driven tasks.

Around the world, the digital shift has sparked discussions about the future of public-sector employment and the skills required for ethical, inclusive, and adaptable management (Maxhobandile & Yusuf, 2024; Ndou & Miccoli, 2025). Although technical and digital skills remain essential for adopting AI, research indicates that behavioural

and interpersonal skills, including empathy, problem-solving, teamwork, emotional intelligence, flexibility, and ethical reasoning, are increasingly in demand (Hutson & Ceballos, 2023; Denysenko et al., 2024). Since AI can run the risk of producing impersonal, detached bureaucracies if it is not balanced with human sensitivity, these abilities are crucial for maintaining legitimacy, public trust, and human-centred service delivery (Schmager, 2025; Lomsadze-Kutchava et al., 2025). As a result, national competence frameworks for public sector reform in countries such as Singapore, Canada, and the UK now incorporate soft skills (Brown & Tholen, 2025).

African Union Commission (2021) notes that the use of AI is growing throughout Africa, driven by the African Union's commitment to leveraging AI for development and its continental digital transformation goals. However, issues such as cultural diversity, digital inequality, fragile public trust, a lack of ethical governance and capacity limitations make soft skills even more crucial (Imran, 2023). It is increasingly acknowledged that soft skills, such as communication, moral leadership, cultural intelligence, conflict resolution, and flexibility, are essential for navigating AI-driven change and ensuring inclusive, human-centred service delivery.

The Batho Pele principles, democratic accountability and constitutional values form the foundation for public sector reform in South Africa (Social Development, n.d). A growing dedication to digital governance is evident in policies such as the National e-Government Strategy (2017), the Presidential 4IR Commission Report (2019), and the establishment of the National Artificial Intelligence Institute in 2023. However, capacity evaluations continue to reveal that public officials often lack essential soft skills, particularly professionalism, responsibility, leadership, ethics, communication, and emotional intelligence (Public Service Commission, 2023; National School of Government, 2024). These inequalities erode public trust, lower service quality, and increase resistance to change, risks that may be exacerbated if AI is implemented without concurrent investment in human-centred skills (Piccirilo, 2025).

Therefore, this paper argues that AI enhances the value of soft moral public service rather than diminishing its necessity. South Africa needs to reconsider the definition, development, and integration of a moral public service within public-sector capacity-building frameworks to achieve an ethical, people-centred, and transformational government. In the digital age, maintaining public trust, encouraging responsive service delivery, and building professionalism all depend on strengthening moral public service. Therefore, this paper aimed to examine the role of the moral public in the era of artificial intelligence and its implications for the transformation of public service.

2. Materials and methods

A qualitative secondary data research approach was employed in this study to examine the existing body of knowledge on the importance of moral public service in the services provided by artificial intelligence. Instead of creating original data, the study aimed to synthesise and understand already published literature, policy documents, and institutional reports; hence, a desk-based method was suitable. Through secondary analysis, the researchers were able to compare viewpoints on AI, moral public service, and the transformation of public service, drawing on a variety of contexts. To ensure relevance to current developments in AI and public service, data were obtained from credible institutional publications, government papers and peer-reviewed academic articles published between 2019 and 2025. Publications from the Department of Public Service and Administration, the Public Service Commission, the National School of Government, and foreign organisations, including the OECD, UNDESA, the World Economic Forum, the African Union, and McKinsey, were important sources. Google Scholar, Scopus, and EBSCOhost all employed the terms moral public service and public service, AI in government, digital transformation in the public sector, and human capital development. A preliminary search across Google Scholar, Scopus, and EBSCOhost produced over 320 papers published between 2019 and 2025. After applying the inclusion criteria, which included peer-reviewed papers, government and institutional reports, English-language sources, and direct relevance to AI, moral public service and public sector transformation, 72 publications were chosen for in-depth research. Only publicly accessible, English-language

sources directly related to the study topic were included. A thematic content analysis was conducted to find patterns within the selected materials. Reading, categorising, classifying, and synthesising essential concepts into themes that addressed the study goal were all part of this process. The findings were presented under the respective topics. Only trustworthy, academic, or institutional sources were used, and data were triangulated across multiple sources to enhance the study's reliability. Although ethical approval was not required because the study utilised secondary data, academic integrity was maintained by properly citing all sources.

3. Theoretical framework

The Socio-Technical Systems (STS) Theory and Human Capital Theory (HCT) serve as the foundation for this study, as they offer complementary perspectives on the value of soft skills in an AI-enabled public sector. According to the Human Capital Theory (HCT), developed by Schultz (1961) and Becker (1993), people's knowledge, abilities, and competences serve as forms of capital that, when invested in, enhance productivity and organisational performance. According to HCT, the ongoing improvement of human skills, including behavioural and interpersonal skills, is essential for the efficient provision of services in the framework of public administration. Soft skills, such as emotional intelligence, ethical reasoning, flexibility, communication, and professionalism, become increasingly valuable as strategic forms of human capital that computers cannot replicate, as artificial intelligence automates repetitive administrative tasks. Therefore, HCT backs up the claim that funding the development of soft skills enhances the public service's professionalism, responsiveness, and capacity, making it a vital component of state capabilities in the AI era.

Socio-Technical Systems (STS) Theory offers a framework for understanding how technical and human elements must collaborate for organisational efficiency, whereas HCT emphasises the benefits of investing in human capabilities. The STS Theory, with its roots in the work of Trist and Bamforth (1951), emphasises that social systems (encompassing people, skills, and culture) and technological systems (including AI, digital tools, and automation) must be optimised in combination for organisational transformation to be effective. When applied to this study, STS Theory emphasises that technology alone will not be sufficient for AI-driven public service change; rather, the incorporation of soft skills that allow public servants to evaluate data, apply judgment, interact with citizens, and ethically use technology is essential.

Three factors make these theories highly relevant to this study. First, HCT supports the main argument that soft skills are an essential component of human capital required to optimise the advantages of AI in public service. Albertus and Hamman-Fisher (2021) indicate that without purposeful investment in soft skills, the public sector risks generating a technologically proficient but behaviourally poor workforce. Second, STS Theory supports the idea that public service transformation must strike a balance between the growth of human capabilities and the adoption of technology, ensuring that AI tools complement human judgment, empathy, and ethical governance rather than replace them. Lastly, when considered together, the two theories provide a solid conceptual foundation for understanding why South Africa must prioritise the development of moral public service delivery to achieve human-centred, moral, and sustainable AI-driven public sector reform. The conceptual model of human-centred AI in public service transformation is illustrated in Figure 1 below.

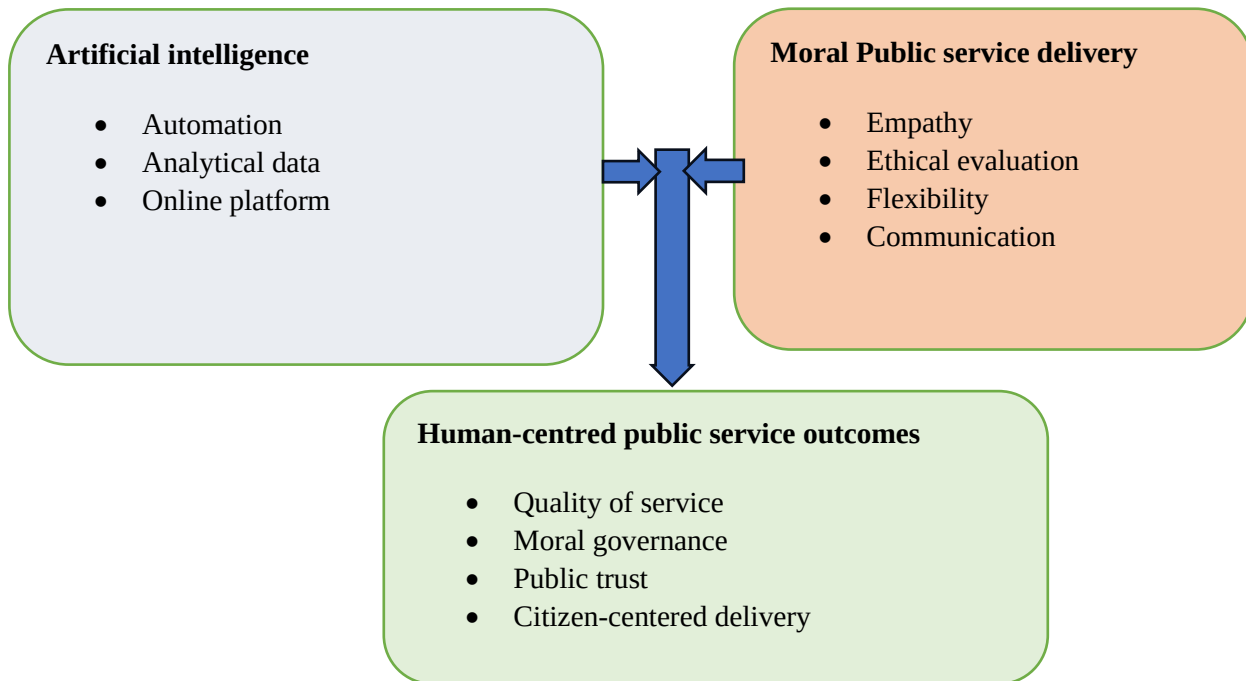


Figure 1. The conceptual model shows how moral public service delivery and artificial intelligence capabilities interact to achieve human-centred public service results. It is based on Human Capital Theory and Socio-Technical Systems Theory.

Source: Authors' own

The model illustrates the interconnection between moral public service delivery and artificial intelligence capabilities as forms of human capital. Automation, data analytics, and digital service platforms are made possible by AI; however, their use is mediated by moral public service delivery, such as empathy, ethical judgment, communication, and flexibility. Human-centred public service outcomes, including enhanced service quality, ethical governance, public trust and citizen-centred service delivery, are achieved when AI and moral public service delivery are combined. The model, based on theories of human capital and socio-technical systems, emphasises that successful public sector reform necessitates the simultaneous optimisation of both technological and human systems, rather than relying solely on technology.

4. Results and discussion

The following major themes related to the growing significance of moral public service delivery in an AI-driven public sector were identified through a thematic analysis of secondary literature and policy papers.

Growing importance of moral public service delivery in the AI era

The finding that moral public service delivery is becoming increasingly important aligns with worldwide research suggesting that AI is increasing the demand for human skills that computers cannot replicate. According to the African Union Commission (2021), preserving human-centred public services in the AI era requires skills such as emotional intelligence, empathy, ethical judgment, complex problem-solving, and effective interpersonal communication. According to Mhlanga (2022), governments that utilise AI should prioritise human-centred values to prevent the emergence of "impersonal digital bureaucracies."

This aligns with African perspectives that emphasise the importance of cultural intelligence, ethical leadership and flexible thinking in navigating technological innovations (African Union Commission, 2021). These findings are supported by South African literature, which argues that when the government automates repetitive jobs, the

quality of services and the citizen experience will be determined by human abilities (Nhede et al., 2022; Ndamase et al., 2023; Ndamase & Lukman, 2024). The literature, therefore, confirms that moral public service delivery is an essential adjunct to AI and is necessary to uphold Batho Pele principles in the provision of technologically mediated services.

Based on the researchers' professional experience with public-sector capacity-building initiatives, they have noted that technology tends to take priority over human interaction. This discovery reinforced the researchers' conviction that human judgment, humanity and compassion are essential in-service delivery and cannot be replaced by AI. The WEF's claim that moral public service delivery is the human differentiator resonated with the researchers' views, as they have observed how people react more favourably to officials who show empathy than to those who react preprogrammed. This confirms that South Africa must adopt a balanced approach to technology and people, as Ntando and Mofolo (2024) noted in their study.

Case-based evidence of the need for humanised public services in the AI era

The South African Social Security Agency's (SASSA) digitalisation of social assistance administration serves as an example of the efficiency improvements and human difficulties that come with AI-supported service delivery in South Africa. Although automated systems have increased administrative efficiency and turnaround times, reports from the Public Service Commission (PSC, 2023) indicate that poor communication, a lack of empathy and insufficient human support during system malfunctions or eligibility disputes are the primary causes of ongoing citizen dissatisfaction. Particularly impacted were vulnerable populations, such as elderly beneficiaries and people with impairments. These flaws were mainly behavioural rather than technological, revealing deficiencies in frontline officials' emotional intelligence, moral judgment and communication skills. This instance supports the claim that public trust and service quality may be compromised by AI's efficiency in the absence of strong moral public service delivery.

Studies on digital service delivery platforms in South African municipalities at the local government level show comparable trends. According to research conducted in King Sabata Dalindyebo Local Municipality, citizens remained dissatisfied when officials lacked responsiveness and interpersonal skills, despite digital tools reducing physical lines and improving access to information (Ntando & Mofolo, 2024; Ndamase et al., 2023). When compassionate human interaction was not accompanied by automatic technology, residents reported feeling alienated. These results support the idea that morally upright public employees with strong interpersonal skills are necessary to uphold Batho Pele values, rather than relying solely on technology.

Estonia's digital government model serves as an international example of the need for humanised public services. The OECD (2023) notes that Estonia maintains human control over sensitive public services, including healthcare, social protection, and migration services, despite the country's widespread use of AI and automation. When automated judgments affect the rights and welfare of citizens, ethical reasoning, discretion, and empathy remain crucial. In a similar vein, the UNDP (2022) emphasises that to avoid exclusion and maintain institutional legitimacy, AI systems must be integrated into human-centred governance frameworks.

When considered as a whole, these examples demonstrate that service delivery problems in digital governance are often due to a lack of moral public service rather than technical constraints. The paper's central claim that AI increases the need for moral public service, grounded in empathy, communication, professionalism, and ethical judgment, is empirically supported by Mhlanga (2022) and Schmager (2025). To achieve citizen-centred and ethical governance, technological efficiency must be balanced with human judgment and discretion. Table 1 summarises the complementary roles of artificial intelligence capabilities and morals in public service delivery.

Table 1. Comparative functions of moral public service and AI capabilities in public service provision

Dimension	AI Capabilities	Complementary moral public service delivery
Administrative effectiveness	Automating repetitious tasks	Flexibility and problem-solving skills
Decision-making	Data processing and predictive analytics	Contextual reasoning and ethical judgment
Citizen interaction	Digital platforms and chatbots	Communication and empathy
Accessibility of services	Constant access to the internet	Cultural awareness and inclusivity
Legitimacy of governance	Rule-based consistency	Professionalism and accountability

Source: OECD (2023), UNDP (2022), African Union Commission (2021)

Table 1 illustrates how moral public service delivery and artificial intelligence capabilities complement each other in the provision of public services. Moral public service delivery, encompassing ethical judgment, communication, flexibility, and empathy, is crucial for evaluating AI outputs and implementing them in a fair, transparent, and citizen-centred manner, even as AI enhances efficiency through automation, data analytics and digital platforms. The table emphasises that high-quality public service outcomes result from the balanced integration of technological efficiency and human judgment within a socio-technical system; AI alone cannot guarantee quality or legitimacy in service delivery.

Challenges of moral public service delivery in South Africa's public sector

The ongoing moral deficiency in public service delivery among public officials, as found in the study, is largely confirmed by South African research and government evaluations. Ongoing problems in professionalism, communication, responsiveness and ethical behaviour are documented by the Public Service Commission (2023). According to the National School of Government (2024), although technical training has increased, behavioural competencies remain lacking, resulting in low levels of public participation and strained relationships at work. Mamokhere (2024) and Sebola (2024), in their studies, emphasised that shortages in moral public service delivery led to poor accountability, opposition to innovation, and failures in service delivery. These sources support the conclusion that, to ensure a capable and moral public service in the AI era, South Africa's human capital development programmes must be revised to prioritise moral public service delivery.

This theme struck a deep chord with the researchers' observations of interactions between community members and government leaders. The researchers have firsthand experience with situations in which a lack of empathy, inadequate communication, or unprofessional attitudes intensified citizen concerns. The research supported the researchers' long-held belief that the public service's change involves not just digital competency but also emotional and ethical competency. The researchers' understanding of the need for behavioural change, in addition to system enhancements, for sustainable transformation has improved because of this contemplation.

Obstacles to the integration of public sector reform and moral public service delivery

The challenges identified, including resistance to change, hierarchical organisational cultures, fragmented training systems, and inadequate tracking of training impact, align with the findings of the reviewed literature. The public sector continues to be compliance-driven, with little incorporation of moral public service delivery development into performance management, according to DPSA (2022). According to African literature, measures meant to humanise digital transformation are undermined by a lack of institutional coherence (UNECA, 2023). Many governments worldwide are adopting technology more quickly than they are reforming personnel capabilities, leading to "digitally enabled but behaviourally weak" public services, according to Soetan and Deloitte (2023). Therefore, the research supports the conclusion that to effectively integrate moral public service delivery into HR, leadership and development systems, South Africa's public sector reform must address institutional and cultural

obstacles. Reflecting on these obstacles led the researchers to wonder why moral public service delivery training often fails to yield long-lasting improvement. In the researchers' experience, leaders often fail to demonstrate appropriate behaviours, even when training is offered, leading to inconsistency. This reflection reminded the researchers that effective leadership is the first step toward cultural change. Staff members cannot internalise moral public service delivery as a professional need if leadership responsibility is lacking. The researchers also realised that the most significant obstacle to behaviour change is frequently organisational culture rather than a lack of training.

Human-centred transformation in public service

The findings align with new research supporting a stronger human-centred approach to digital governance. To ensure that AI enhances human connection rather than replaces it, the UNDP (2022) and the WEF (2024) stress the importance of integrating moral public service delivery into competency frameworks. To maintain inclusive governance in the digital age, research from the African Union (2024) suggests incorporating ethics, empathy and cultural intelligence into training. Ncamphalala (2025), both in their respective work, indicate that to improve service quality and rebuild public confidence, South Africa should coordinate moral public service delivery training with Fourth Industrial Revolution (4IR) public-sector reforms. Therefore, the literature demonstrates that South Africa has the opportunity to utilise moral public service delivery as a strategic lever for AI-enabled transformation that is moral, responsible and citizen-centred. This theme reinforced the researchers' optimism about South Africa's capacity for transformation. The researcher noticed that, when combined with a solid foundation of professionalism, ethics and empathy, AI presents an opportunity rather than a danger. The researchers considered how AI might relieve public employees of administrative duties, allowing them more time to interact with citizens in a meaningful way. This made me realise that technology should not make government less human, but rather more.

Impact of soft skills in the public sector

The findings revealed that, particularly in the context of AI-enabled governance, moral public service delivery has a significant and diverse impact on the efficacy, legitimacy and transformation of the public sector. The findings suggest that moral public service delivery has a significant impact on service quality, ethical governance, organisational culture, human-AI collaboration, and creativity in public institutions.

Table 2. Essential moral public service delivery for AI-powered humanised public service

Moral public service delivery	Role in AI context	Governance Contribution
The capacity for emotional intelligence	Managing citizen frustration	Increases trust and dignity
Reasoning ethically	Supervision of choices made with AI assistance	Prevents bias and unfairness
Communication	Explaining the results of AI	Enhance transparency
Flexibility	Adapting to rapid change	Encourages sustainable reform
Collaboration	Human-AI collaboration	Enhances the culture of the institution

Source: African Union Commission (2021); WEF (2024); NSG (2024)

The essential moral public service delivery needed for humanised public service in AI-enabled governance situations is compiled in Table 2. Public employees can effectively manage citizen interactions, ethically monitor AI-assisted judgments, and adapt to rapid technological change with skills such as emotional intelligence, ethical reasoning, communication, flexibility, and teamwork. The table shows that these skills are fundamental human capital, guaranteeing that the deployment of AI enhances rather than diminishes public trust, ethical governance and service quality.

Improving service delivery's responsiveness and quality

Frontline interactions between citizens and public officials are significantly influenced by moral public service delivery, including empathy, active listening, effective communication and interpersonal sensitivity. Research demonstrates that service delivery becomes more responsive, citizen-centred and efficient when public personnel show professionalism, patience and emotional intelligence (Van der Walddt, 2020; NSG, 2024). Moral public service delivery plays a crucial role in an era of AI-powered platforms, such as chatbots and automated service systems, by humanising digital service channels and ensuring that technology does not replace human interaction. Reinforcing the Batho Pele ethos still heavily depends on public authorities' capacity to understand residents' issues and offer sympathetic direction.

The researchers suggest that empowering officials to interact with citizens in a courteous, straightforward and emotionally intelligent manner enhances the quality, empathy and responsiveness of public service delivery by developing their moral skills. These human abilities ensure that AI-supported service channels maintain their compassion and focus on citizens as services become increasingly digitalised, thereby avoiding discontent and estrangement.

Increasing public trust and ethical behaviour

Transparency, accountability, ethics, and integrity are acknowledged as fundamental moral values in public service delivery that support the professionalism of the public service (Palmer & Pillay, 2025). To ensure responsible technology use and protect people's rights, ethical and moral public service delivery is becoming increasingly important as AI systems raise issues related to data privacy, fairness, and algorithmic bias (Modi, 2023). Strong ethical reasoning makes public officials more likely to support moral AI-assisted decision-making and preserve constitutional principles.

The researcher's view is that building public trust and confidence in government institutions requires ethical, moral public service delivery, including honesty, responsibility, equity and respect for people's rights. The researchers believe that in the era of AI, ethical judgment safeguards against threats such as algorithmic bias, data exploitation and depersonalised decision-making, ensuring that digital transformation aligns with constitutional values and Batho Pele principles.

Enhancing collaboration, teamwork and organisational culture

Moral public service delivery has a positive effect on teamwork, organisational culture and workplace cohesiveness. Research demonstrates that skills such as collaborative communication, emotional intelligence, conflict resolution and flexibility enhance internal connections and foster a respectful and cooperative culture (Sharma et al., 2024). These abilities help ease workplace conflicts, improve departmental cooperation and facilitate the smoother execution of organisational changes. When it comes to integrating AI, collaborative, moral public service delivery enables public servants to work effectively in interdisciplinary teams where digital technologies and human knowledge must interact.

Improving collaboration, communication, flexibility, and conflict resolution, and fostering moral public service delivery, fosters strong working relationships, productive teamwork, and a positive organisational culture. Organisational performance improves when authorities behave professionally and encourage cooperation across departments, enabling greater adoption of digital transformation projects.

Support of successful human-AI cooperation

Moral public service delivery is essential for maintaining a balanced human-technology interaction as AI becomes more integrated into public sector operations. Public officials are better equipped to understand and utilise AI results in public service contexts when they possess skills such as critical thinking, ethical judgment, contextual reasoning and decision-making (OECD, 2023; WEF, 2024). Moral public service delivery is essential to ensuring

that AI complements, rather than replaces, human judgment, particularly in delicate or complex situations involving vulnerable populations. These abilities guarantee that AI upholds rather than undermines human dignity by maintaining equity and inclusion in decisions mediated by technology.

Moral public service delivery enables public servants to apply context, properly interpret AI outputs and maintain human oversight as AI increasingly influences decisions in the public sector. To preserve equity and inclusion in public judgments, critical thinking, ethical reasoning, and cultural sensitivity help ensure that AI enhances human judgment rather than replaces it.

Promoting creativity, flexibility and continuous education

According to research, moral public service delivery helps individuals become more innovative, creative, resilient and adaptable, qualities necessary for navigating the changing demands of the digital age. Strong moral public service delivery by public officials is associated with increased reflective practice, openness to change, and readiness to embrace new technology (UNDP, 2022; African Union, 2024). These qualities make possible a growth mindset that encourages continuous learning, experimentation, and problem-solving. Moral public service delivery enables workers to focus on value-added jobs that require creativity and human judgment as AI automates repetitive tasks. Moral public service delivery speeds up long-term change and institutional adaptability in this way. Researchers believe that moral public service delivery enables public officials to welcome technological change rather than fight it by fostering creativity, resilience, transparency in learning and innovative thinking. Fostering a growth mindset and a willingness to adopt new digital technologies, these abilities enhance the public service's institutional agility and potential for long-term transformation.

Conclusions and recommendations

The goal of this paper was to examine the role of moral public service delivery in the era of artificial intelligence and its implications for transforming the South African public service. The results demonstrated how AI is changing the public sector by automating repetitive administrative tasks while also highlighting the value of uniquely human skills. Emotional intelligence, ethical judgment, communication, flexibility, teamwork and responsibility are examples of moral public service delivery that are increasingly recognised as key facilitators of an ethical, effective, and citizen-centred government. Based on the Human Capital Theory, the study verified that to improve individual and organisational performance, moral public service delivery is a type of human capital that must be consciously developed. The Socio-Technical Systems Theory further reaffirms that human capacity and technology must be balanced for AI-driven change to be effective, and that both systems must be jointly optimised.

The study findings indicate that moral public service delivery enhances service delivery quality, improves public trust and ethical governance, fosters a positive organisational culture, facilitates human-AI collaboration and promotes creativity and lifelong learning. The adoption of AI runs the risk of exacerbating inequality, increasing public discontent and eroding accountability systems in the absence of robust moral public service delivery capabilities. As a result, the study concluded that, in a rapidly digitalising governance landscape, moral public service delivery is essential for maintaining human dignity, service quality and professional behaviour, rather than being an outcome of public service performance.

Based on the findings, the study concludes that prioritising moral public service delivery at the forefront of capacity-building and digital transformation initiatives is essential for the future of South Africa's public sector. The study therefore recommends that public service training be redesigned to incorporate experiential, reflective, and behaviour-focused learning; that those soft skills be institutionalised within competency frameworks, professional development programmes, and leadership training; and that AI implementation strategies adopt a human-centred, ethical approach in line with Batho Pele principles. The study also suggests developing a culture

of ongoing innovation and learning, backed by systems to measure the impact of service and behavioural change. According to the study, moral public service delivery is a fundamental prerequisite for creating a competent, moral, creative and citizen-focused public service that is human in the digital age rather than an add-on to AI-driven transformation.

This paper has inherent limitations because it relies on existing literature, policy documents, and institutional reports. The study lacked primary empirical data from individuals, public officials, or policy practitioners. Second, to reflect the current advances in the AI era, the evaluated literature primarily focuses on recent publications (2019-2025); as a result, older contributions to the debate may be underrepresented. Thirdly, the lack of empirical study on moral public service delivery in AI-driven public administration throughout the continent limits the depth of African regional literature, even if global, African, and South African views were included. Finally, the study does not evaluate the framework in real-world settings; future studies should use case studies, pilot implementations, or mixed-methods research designs to empirically verify the framework.

Based on this paper's findings, it is recommended that the South African public service prioritise integrating moral public service delivery as a fundamental component of public sector capabilities in the AI era. Firstly, public service competency frameworks include emotional intelligence, ethical reasoning, communication, adaptability, teamwork and problem-solving. These skills will impact hiring, performance management, advancement, and professional standards at all levels of government. Second, methods of training and professional development need to be changed to shift from content-focused, compliance-based delivery to experiential, reflective, and behaviour-centred learning strategies that create long-lasting competency. Mentoring, coaching, peer learning and courses on the moral and responsible use of AI are all examples of such changes. To drive cultural change throughout digital transformation, create psychologically secure and collaborative work environments and set an example of desirable values and behaviours, it is also crucial to strengthen ethical and transformational leadership. To ensure that technology adds value to people rather than undermines them, AI and digital transformation initiatives should also incorporate a human-centred approach. Moral public service delivery should guide the ethical, equitable, and inclusive use of AI in service delivery. Communities of practice, digital learning centres and innovation platforms that foster cooperation, creativity and flexibility should be utilised to promote a culture of ongoing learning and innovation. To evaluate the success of moral public service delivery development programmes, the government should ultimately establish clear behavioural indicators and monitoring and evaluation systems that focus not only on training attendance but also on actual behaviour change and improvements in service delivery outcomes.

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ADVANCING LOCAL ECONOMIC DEVELOPMENT THROUGH AGRICULTURAL SUPPORT INITIATIVES**Njabulo Masondo ¹, Yusuf Lukman ^{2*}**^{1,2*} Faculty of Management and Public Administration Science, Walter Sisulu University, South AfricaE-mails: ¹220279225@mywsu.ac.za; ^{2*}yukman@wsu.ac.za (Corresponding author)

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Abstract. Agriculture is a vital activity that drives the local economy. This study explores agricultural support in South Africa. This research focuses on initiatives local governments take to bolster agriculture and promote economic growth, recognising that agriculture plays a crucial role in the financial foundation of rural communities. There is slow growth in the local agricultural sector in most rural settlements due to inadequate support from local authorities. Specifically, the study aims to explore and strengthen agricultural support in the Mquma local municipality area by examining existing local economic development strategy initiatives, particularly those related to agriculture, and then empowering these initiatives to fully support rural settlements. The study employed a mixed approach with stratified random sampling to collect data. The sample size was limited to 68 rural farmers in the Mquma local municipality area, specifically wards 24, 25, 26, and 27. The questionnaire responses included 77 rural farmers plus one agricultural and forestry officer in the Local Economic Development unit, making the total sample size 78 for the study. The data were analysed both statistically and qualitatively using SPSS and Atlas. Ti. The findings demonstrate that current support initiatives are practical and beneficial to rural farming, as indicated by the high level of satisfaction reported by rural farmers regarding the assistance provided by the municipality. The main issue is the lack of constant support, innovation, and adequate funding from the city for rural farmers. The study recommended a list of solutions to combat these challenges, such as increasing the number of supported farmers annually, increasing the budget for the agriculture and forestry office, standardising innovation and skillset in the agriculture and forestry office in Mquma local municipality to maximise support, maximising monitoring procedures, accountability, transparency and intergovernmental collaborations.

Keywords: local economic development; rural agriculture; rural municipalities; Eastern Cape; South Africa**Reference** to this paper should be made as follows: Masondo, N., Lukman, Y. 2026. Advancing local economic development through agricultural support initiatives. *Insights into Regional Development*, 8(1), 105-119. <http://doi.org/10.70132/p5696977889>**JEL Classifications:** O1, O13, H25**Additional disciplines:** Agriculture, Management**1. Introduction**

Rural communities depend on agriculture as their fundamental economic activity to achieve financial stability (Mbatha, 2020). The primary level of economic growth requires support to enable continuous skill and ability development in community foundations (González-Esteban & Botella-Rodríguez, 2022). Rural municipalities in South Africa face challenges in supporting farmers in meeting basic standards for their agricultural businesses. The Eastern Cape province's Mquma Municipality, within the Amathole district municipality, continues to face challenges in supporting economic development for its population. The Local Economic Development (LED) program, operating at the lower level of the South African government hierarchy, enables local governments to provide various initiatives for community economic support.

In the context of the Mquma Municipality, special economic zones, including tourism, mining, and agriculture, are the primary focus of the municipality's jurisdiction. Specifically, this study examines the support initiatives provided by the Mquma municipality to promote agriculture in its communities. This study examines the challenges and developments associated with promoting agricultural ventures within the communities of the Mquma municipality.

Onyiriuba et al. (2020) argue that every state enhances its rural settlements to embark on agricultural production, as it is the primary means of production for the base of a growing economy. South Africa has been one of the countries struggling to position the agricultural sector in the proper channels for primary economic growth. In the local government spectrum, various municipalities in South Africa have been battling with a lack of support for agriculture through LED. South Africa is a developing country that still relies heavily on the primary and secondary sectors for economic growth and GDP expansion. Rural settlements should be a focus to stabilise the economy through agriculture. Davis (2022) Emphasises that rural municipalities, particularly in the Eastern Cape, KwaZulu-Natal, Limpopo, and Mpumalanga provinces, still lack an adequate support structure to promote local agricultural growth, which will stimulate their communities, rather than migrant farmers. Rural municipalities, such as the Mquma municipality in the Eastern Cape, have a history of struggling to support local farmers. The municipality serves a population of 252,390, with significant economic activity in retail trade and various other trades. However, the communities in Butterworth have great potential in farming and other agricultural activities. Although most farmers are subsistence farmers, the land of Butterworth has been proven fertile enough for large-scale farming. Mdoda et al. (2022) state that the full agricultural potential in Butterworth has not been fully explored by either the private or public sectors. Despite its small territory, Butterworth has relatively fertile land, which produces crops such as maize, vegetables, and fruits. Livestock farming and other farming activities are predominantly operated by external companies in Butterworth, rather than local ventures or farmers occupying the farming space (Christian et al., 2020).

Statement of the Problem

There is a pool of factors that can prevent development in rural areas; however, some factors are critically dependent on the government authority of rural settlements, rather than the capacity of the dwellers or residents themselves. To extend this, many rural municipalities have been struggling to meet the needs of their limited capacities in rural settlements. A lack of skills and innovation in these rural municipalities causes these battles. Nevertheless, particularly in the Mquma municipality, there has been a gap in local economic development strategies, specifically in supporting agriculture, as in other areas of the economic zone in Butterworth. The lack of adequate support for agriculture has been primarily caused by insufficient revenue collection from the Mquma municipality to direct the solid budget to LED, particularly in providing sufficient funding for agricultural initiatives. However, funding is not the primary challenge since some funds are well distributed to agricultural programmes. According to the 2022/2023 Mquma municipality annual report, the challenge this study seeks to explore is how these funds are utilised for initiatives aimed at boosting the farmers of Mquma municipality. (Mquma Municipality, 2023).

The research aims to examine the impact of agricultural initiatives in the Butterworth area of the Mquma municipality.

The lack of agricultural activity in Butterworth had troubled the researchers in their efforts to understand why there is no economic movement around agriculture in rural areas near Butterworth. It is essential to motivate rural farmers to undertake their ventures, which will help boost agricultural activities in the Mquma municipality area. This study will fill a significant gap in understanding economic turbulence in local communities, not just in Butterworth, but in all rural areas across South Africa. If adopted, it will help municipalities innovate in supporting agricultural training to boost the primary sector and redirect resources to local, deserving entrepreneurs, rather than international and continental ones.

2. Theoretical Framework and Literature Review

Dode & Cletus (2019) state that several theories can be aligned with developing agriculture, especially those theories relating to the 21st century, such as Modernisation Theory, technology-related theories, such as the Technology Acceptance Model since farming has also been introduced to robotic solution such as drones used for irrigation, technological devices used for testing plant type, detection of bacteria, weeds and modifying plants for fast growth. According to García-Avilés (2020), humans are social creators driven by sharing ideas, both involuntary and voluntary. Different characteristic approaches to problem-solving can be shared and influenced across the world without explicit expressions. Traditionally, issues were addressed by different specialists with varying approaches to solving problems, sharing solutions among groups and later adopting them across nations to address similar issues. With reference to what has been explained, a traditional theory called Diffusion of Innovations Theory was created by Everett Rogers, confirming this idea of spreading knowledge and ideas across similar disciplines or focuses with similar problems to solve or developments to achieve. The theory then focuses on disseminating knowledge and innovation based on various perspectives and approaches to solve a specific problem. Traditionally the theory is best at use because traditional matters during the early years of human existence often demanded new and unique human thinking and innovation combined with knowledge to solve problems later on adopting same innovations to solve similar problems, now diffusion of innovation theory is all about the study of human innovation and how their shared, strengthened and communicated through various means of communication to solve critical issues or achieve developments.

Throughout the decades, this theory has helped the globe connect and network ideas and innovations to develop social and economic constraints by adopting different characteristics, regardless of specialisation, such as economics, politics, physics, engineering, or other disciplines. This theory has helped problem solvers to share a pool of innovation without focusing on a specific specialisation of a problem solver (Briggs, 2020). According to Zanello et al (2016), this theory can also be limited to a single specialisation, focusing on solving a problem in a specific area of practice, such as civil engineering; however, the diffusion or spreading of innovative solutions is based solely on the character or perspective of that problem solver in that field.

This study adopts this theory, given the domination in the traditional development of the rural economy and agriculture. The theory aligns best with this study because South Africa remains part of a group of developing countries characterised by significant gaps in traditional development, particularly in rural agriculture. As portrayed in this study above, agriculture is one of the essential economic activities which enables a country to thrive primarily; therefore, this theory covers this, essentially addressing how developing states can receive innovations from each other and developed states that have passed traditional stages of agricultural development with selected ways of sharing innovations and ideas.

Considering that the problem statement is focused on slow paced agriculture in rural areas in Mnquma local municipality the sharing of agricultural innovations can be gradually conducted to lower level of government with the provinces of South Africa as to study hoe other similar municipalities are dealing with the same problem in South Africa before innovation is explored in the SADAC region further in the Southern Africa, more in the continent Africa then going outside to the globe observing and studying different innovations in superpower states such as China since it dealt with traditional agricultural development during the Mio Zedong era and 1970s.

Mdoda (2022) notes a broad category or type of farmers in Butterworth. Only livestock, poultry, pig farming, forestry and crop production are found as farming practices. Other farming areas, such as fishing, horticulture, agroecology, greenhouse farming, and grain farming, are scarce. Christian (2020) explains that, generally, smallholder farmers have played a significant role in addressing food security worldwide. Studies conducted by the United Nations reveal that traditional farming has helped many developing countries alleviate poverty and reduce hunger. According to Carelsen et al (2021), internationally, smallholder farming has been recognised as

playing a crucial role in supplying the world with nutritious food and ensuring food security. The scholars maintain that not all types of smallholder farming should be placed in a competitive environment with commercial farming; however, encouraging consistent small-scale farming may help the world decrease starvation and hunger, particularly in developing countries.

Most small-scale farming is visible in developing states with less industrialisation and a more traditional economy. A significant challenge in these farming activities is profitability, as small-scale farming often lacks the necessary support to sustain profitable operations. Underdeveloped nation-states, such as Burundi and South Sudan, have critically low profitability in smallholder farming, yet many smallholders in rural areas compete for a tiny market. Let alone the local economic failure to address these realities. However, the other challenge is that there are high levels of food insecurity because farmers are not encouraged to farm for basic survival, leaving the nation with several cases of malnutrition.

Logically, a general means of survival in farming, for instance, is to plant crops and harvest for selling in the markets to get profit to survive, yet not realising that the maximised level of small-scale farming can be a double-edged sword for farming, for means of food productivity, while reserving some harvests to compete in the markets. Reliable local authority support has been lacking in several governments of underdeveloped nations due to a failure to provide necessary awareness for farming to achieve food security, while prioritising farming for the market. Shushu (2024) states that international cooperation, in promoting the Sustainable Development Goals (SDGs), has made noticeable differences in addressing the roles of smallholder farming in response to hunger, one of the urgent SDG goals to achieve. This has led to noticeable success in spreading the idea of farming for food security while also promoting market-oriented farming by encouraging smallholder farmers to pursue a dual purpose in their farming activities. Some countries in Africa have effectively led these ideas, such as South Africa, which has been hosting educational awareness campaigns to encourage maximum farming to promote food security.

This is not effective for full agricultural support to promote positive and sustainable impact because supporting rural farmers will be different from supporting urban or modern farmers, such as those in rural settlements, where literacy is still critically low, there is no industrial exposure, no entrepreneurship exposure, language barriers, disadvantageous networks for distance connection or using online sourcing for educational exposure. All of these factors contribute to a demand for more competent, advanced and flexible leadership for the local municipality to support rural farmers extensively. Suppose these attributes are not embedded in the agricultural sector in the LED of any rural municipality. In that case, a shortage of support will lead to an undesirable negative impact on rural farmers.

Due to climate change, the scale of farming has declined over the past few years. This has not been an issue in the Eastern Cape province, but globally, climate change has negatively impacted farming, leading to a decline in farming patterns. The Department of Agriculture and Land highlighted this challenge, noting that changing weather patterns resulting from global climate change led to droughts. This makes farming difficult, especially in rural areas, considering that water is scarce in most of the Eastern Cape. This has been a complex challenge for the relevant authorities to address. Bontsa et al. (2023) have shown that climate change is almost uncontrollable, as environmental studies have revealed that its causes are varied, including human activities such as vast industrialisation, mining, and gaseous emissions.

The Integrated Development Plan 2022/2027 (IDP) of Mquma municipality identifies agriculture as one of the primary focuses for economic development. The IDP of the municipality has strategically outlined agriculture as a key driver of rapid growth in rural development; hence, the IDP focuses on agricultural matters by addressing them through quality strategic planning to attract funds from the private sector. Sohuma (2023) explains that another factor contributing to the small selection of farmers is that most active farmers are older adults who are

focused on smallholder farming rather than farming for entrepreneurial purposes. This is because young people are reluctant to farm, yet young people possess skills and literacy, which is quite modern and might be more consultative in the municipality.

On the other hand, older farmers are reluctant to attend training programs hosted by the municipality to enhance their farming skills. This is due to constraints such as health issues, illiteracy, and a lack of energy to walk or travel long distances. The municipality had implemented initiatives such as capacity building, providing small farmers with basic farming practices, distributing farming materials and equipment, and visiting farmers with ongoing challenges (Zantsi, 2021). The underlying issue related to small farming in Butterworth is the land itself, as it has been considered unfertile for good crop growing, and it is difficult for the municipality to reserve ample fertile land for local farmers to occupy; instead, particular individuals own large tracts of fertile land. (Sigigaba, 2022). In the meantime, the farming initiatives by the Mnquma municipality are still relatively small. According to the last municipal annual report under the LED section, only 11 farmers were supported by programmes such as crop production, livestock improvement, and animal medication provision.

Christian (2020) emphasises that supporting farming with essential materials, such as weed prevention chemicals, wheelbarrows, crop management and growth chemicals, seeds, pest control, and chemicals for treating livestock affected by animal diseases, is much more reliable than awarding farmers a large amount of funds. Studies have shown that most rural farmers lack financial education due to limited exposure and a low literacy rate, which can lead to reckless financial decisions. Therefore, awarding farmers with relevant farming necessities is more cost-effective than allocating funds. Furthermore, financial education is a gradual process for Butterworth farmers, as it is an essential capacity required in the entrepreneurial sector, particularly in the agricultural sector.

As outlined above, due to modernisation, rural farmers are struggling to meet market demands, largely because of the competitiveness of machinery farming, which leaves them ineffective in driving agricultural growth. Moda (2022) quotes, that old rural farmers are affected by the modernisation of farming because illiteracy levels are critically low in most rural areas. For instance, in the Eastern Cape, the introduction of mechanised farming has been a challenge for some time because the province consists of rural farmers, who are mostly not exposed to industrial experience. Supporting bodies, such as the National Youth Development Agency, have effectively assisted the Eastern Cape province by partnering with nearby local municipalities to introduce mechanised farming through entrepreneurship programs aimed at the youth.

A small enterprise development agency had also contributed to this gap in machinery farming by delivering relevant training, education, and equipment to emerging rural farming entrepreneurs in the Eastern Cape. Rural farmers in the Mnquma municipality had benefited from these opportunities (Bese et al., 2021). The gap is still visible, considering that farming in rural areas, such as those in Butterworth, still faces challenges in adapting to industrial or mechanised farming. Specifically, the Mnquma local municipality has been battling with issuing the necessary equipment due to budget constraints, although the integrated plan of the municipality has made a plan for addressing the issue of machinery farming initiatives offered by the relevant authority

The vast relevance of local economic development (LED) in this study has led to the conceptual framework being focused solely on LED as a concept to be expanded, as it serves as a suitable tool for local and rural development in South Africa and other developing countries. Conceptualising LED is critical for this study, as South Africa has adopted LED as a system for promoting local economic growth and entrepreneurship at the grassroots level (Ababio & Meyer, 2012). LED is a strategic approach to tackle issues such as unemployment, lack of innovation, and productivity while developing abilities and skills.

According to Khumbule (2020), the adoption of this strategic approach to human development has no specific date of inception; however, European states initiated this approach to promote human development. Due to its

widespread adoption, it is unclear who the specific founder or creator of LED is. However, it has assisted many states in driving economic growth at the lowest level possible, resulting in an even spread. Juta (2023) emphasises that regardless of a state's political system, LED can be adopted by any state and work effectively if the leadership of that state is committed and determined. The LED was championed by the World Bank around 2001, influencing the system to be adopted in most states to fast-track world economic growth; this is where most countries were already aware of LED. Countries also adopt the LED differently; for instance, some countries temporarily adopt this programme, while others make it permanent to enable the achievement of controlled local growth, such as South Africa (Ababio & Meyer, 2012). According to the World Bank, the LED programme operates as a process with distinct phases.

3. Research Methodology

Toole (2020) stresses that the research approach also varies depending on the epistemology behind the study or research. Traditional knowledge contributes to research, combined with scientific knowledge, depending on the discipline in which the researcher is specialised, which is formally known as epistemology, and it directs the research approach the researcher will opt for. The existing knowledge has an impact on any study, as the gap is taken from reality and coexists with a realistic system; this is known as ontology (Al-Ababneh, 2020). Choosing a research approach becomes an increasingly philosophical task for researchers. Most social science researchers are known as interpretivists, which is derived from the paradigm. A paradigm is a philosophical tool that directs the researcher's observations toward the problem statement and the reactions from the affected population.

The study employed a mixed-methods approach, combining both qualitative and quantitative methods to provide a comprehensive capture of data. This approach was selected to gather detailed feedback from farmers in the Mquma municipality area regarding the benefits and challenges of agricultural initiatives by the municipality. Both closed and open-ended questions will be employed to collect information from farmers in Butterworth and the municipal administration responsible for Local Economic Development (LED), particularly in the agricultural sector. The researcher will employ a quantitative approach to analyse economic patterns in both small- and large-scale farming, providing a comprehensive understanding of the agricultural sector in the rural areas under the Mquma municipality.

The justifications for adopting this study are based on primary observations of the complexity of the problem in rural farming within the Mquma municipality area. The problem is complex in the sense that the challenge around the agrarian initiative support is not only based on the municipality's databases and coverage to rural agriculture, but the challenge also extends to other relevant authorities like the Department of Agriculture in the Eastern Cape and the farmers themselves, since they lack enthusiasm for farming, particularly rural farming. This motivates the researcher to adopt a mixed-methods approach, providing a more statistical, yet descriptive and broader, sense of data collection and analysis.

In a mixed-methods approach, the population size may comprise both large and small numbers within the jurisdiction, depending on the area the researcher selects and the scope of the problem. In total, Butterworth has a population of approximately 232,993; within this number, there are relatively few farmers contributing to both food security and food production and trade (Mdoda, 2022). Considering the open lands and rural areas in Butterworth, the small number of farming participants should be a concerning factor not only to the Mquma local municipality but also to the Department of Agriculture in the Eastern Cape province. According to the latest annual report of the Mquma local municipality, the majority of active farmers are smallholder farmers in rural areas under the Mquma municipality, with very few farmers farming for market sales or to supply wholesalers and retailers. This study focuses primarily on collecting data from identifiable farmers in the under Mquma local municipality.

According to 2022 census data, Butterworth has a population of 232,993, which is divided into 32 wards demarcated for the municipality; therefore, it is impossible to focus on all these citizens and produce valid information (Mnquma Municipality, 2023). Since this study focuses on agriculture particularly in the rural areas of Butterworth the population covers all the wards under Mnquma Municipality considering that these wards carry a high number of farmers active in small farming in their households and their owned farming land, for instance it is possible to find ward 01 having more than 20 farmers only and these farmers vary depending on the size of the ward but all range above 20, this information is according to the Agriculture department of the Eastern Cape based for Butterworth. Due to this, this study randomly selects 2 farmers per ward to represent the total population of farmers for the study. 2 is multiplied by the number of wards added with 2, which represents Mnquma municipality officials in the LED section, to get a total sample size $2 \times 32 + 2 = 66$.

Therefore, the researcher's assumptions may not be accurate. In terms of the number of farmers per ward, given the total number of wards, this method is not accurate and therefore not reliable in this study. A more scientific and accurate widely used formula in the mixed method approach, the sample size was therefore scientifically counted as follows:

$$n = \frac{z^2 \times P \times (1 - p)}{e^2}$$

n = sample size

z^2 = confidence level (z-score)

P = population proportion (from a population of 323,993)

e^2 = Margin error

$$n = \frac{90\%^2 \hat{C} - 0.05 \hat{C} - (1 - 0.05)}{10\%}$$

$n=68$ (Sample size)

Therefore, the above calculations confirm that the sample size for rural farmers under Mnquma Municipality for this study will be 68 farmers. This study employed the second formula to calculate the sample size, yielding a sample size of 68. A Structured survey using Google Forms was designed to gather quantitative data on key variables related to agricultural support initiatives and local economic development. The survey included closed-ended questions to measure participants' perceptions, experiences, and outcomes regarding various aspects of agricultural support programs.

Direct observations of agricultural activities, community events, and stakeholder interactions in Mnquma Municipality were conducted to supplement data gathered through surveys and interviews. Observations helped validate and contextualise findings from other data collection methods, providing a deeper understanding of the local context and dynamics.

The Statistical Package for the Social Sciences (SPSS) has been adopted for analysing quantitative data received from agricultural statistics of the Mnquma municipality area. This data is represented by bar graphs, pie charts, and a few tables to portray the statistical representation of the data. On the other hand Atlas ti software has been adopted for analysing the qualitative data received from other parts of questions covered in the survey which expected long expressions of texts as answer, due to that Xhosa was used in the survey to accommodate elderly farmers who do not understand English to clean and interpret the data to academic professional English Atlas ti was used analysing the data using thematic approach.

4. Findings

The data were analysed qualitatively and quantitatively using three systems: SPSS, ATLAS, and Excel, for comprehensive statistics and simplified analysis. SPSS contains descriptive and statistical analyses, with individual variables analysed for numeric expressions such as the total percentage of females that participated in the questionnaire. SPSS also contains normative analysis, as the data were collected with demographics active in rural farming in the Mquma municipal area. SPSS covers summaries of statistical descriptive analysis between different variables to find what the data contains. SPSS also contains reports that display individual variables and numeric layouts, allowing comparisons across different variables. The use of Atlas was to validate the reliability of the data collected, as other variables were expressed as answers to questions about the capacity of the Mquma local municipality in enhancing farming in rural areas. Excel was used to create a simplified report combining all variables for this data.

The gender distribution of respondents in the study indicates a higher participation of females (44 respondents, 57.1%) compared to males (33 respondents, 42.9%), (see Table 1). This finding suggests that women play a prominent role in agricultural activities within the selected local municipality in the Eastern Cape. The strong female representation highlights the centrality of women in sustaining rural livelihoods, particularly in small-scale and subsistence farming systems, which are often closely linked to household food security and community wellbeing. This pattern reinforces existing evidence that women constitute a significant proportion of the rural agricultural workforce, despite frequently facing structural constraints such as limited access to land ownership, credit, and agricultural inputs.

From a rural development and policy perspective, the gender profile underscores the importance of designing agricultural support initiatives that are gender-responsive and inclusive. Given women's numerical dominance in the sector, targeted interventions such as skills development, access to extension services, financial support, and market linkages should be deliberately designed to address gender-specific barriers and enhance productivity and income generation. At the same time, the relatively substantial participation of men indicates opportunities for balanced, household-based agricultural development approaches. Overall, strengthening support for both women and men, while prioritising women's empowerment, can significantly contribute to advancing rural prosperity and achieving sustainable agricultural development in the municipality.

Table 1. The gender distribution of respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female (Ibhinga)	44	57.1	57.1	57.1
Male (Indoda)	33	42.9	42.9	100.0
Total	77	100.0	100.0	

Table 2. The distribution of respondents by category of farming and age group

Category of Farming	16–18 (Count)	18–30 (Count)	Above 30 (Count)	Remarks
Commercial farming	2	12	5	Engagement increases with age
Cooperative farming	0	5	1	Limited participation
Industrial farming	0	4	3	Low overall involvement
Subsistence farming	0	35	7	Dominant practice among youth
Subsistence & Commercial farming	0	2	1	Mixed engagement
Total	2	58	17	

The data reveal a clear age-based pattern in the categories of farming practised within the selected local municipality. The majority of participants are aged 18–30 (58 respondents), indicating strong youth involvement in agriculture, which aligns with the study's objective of advancing rural prosperity through targeted agricultural

support initiatives (see Table 2 above). Within this age cohort, subsistence farming is the dominant practice (35 respondents), suggesting that most young people primarily engage in agriculture for household food security rather than market-oriented production. Commercial farming is present among this group (12 respondents), but it is limited, while cooperative and industrial farming remain relatively low. This distribution reflects structural barriers, such as limited access to capital, land, technology, and markets, which constrain young farmers from transitioning into higher-value, more commercialised forms of agriculture.

In contrast, participation among those aged 30 or older (17 respondents) reveals a more diversified engagement across commercial (5), industrial (3), and subsistence farming (7) sectors, indicating that experience and resource accumulation may facilitate progression along the agricultural value chain. The very low representation of the 16–18 age group (only 2 respondents, all in commercial farming) suggests minimal early entry into agriculture, potentially due to schooling commitments or limited exposure to agricultural programmes at that stage. Overall, the findings underscore the need for differentiated agricultural support initiatives that prioritise youth-focused capacity building, access to finance, and market integration to facilitate a shift from subsistence to sustainable commercial and cooperative farming. Such targeted interventions are critical for advancing rural prosperity and ensuring that agriculture becomes a viable livelihood pathway for younger populations in the Eastern Cape. Participants are presented by age group and their response to whether they have ever benefited from any agricultural initiatives hosted by the uMquma local municipality, as shown in Figure 1.

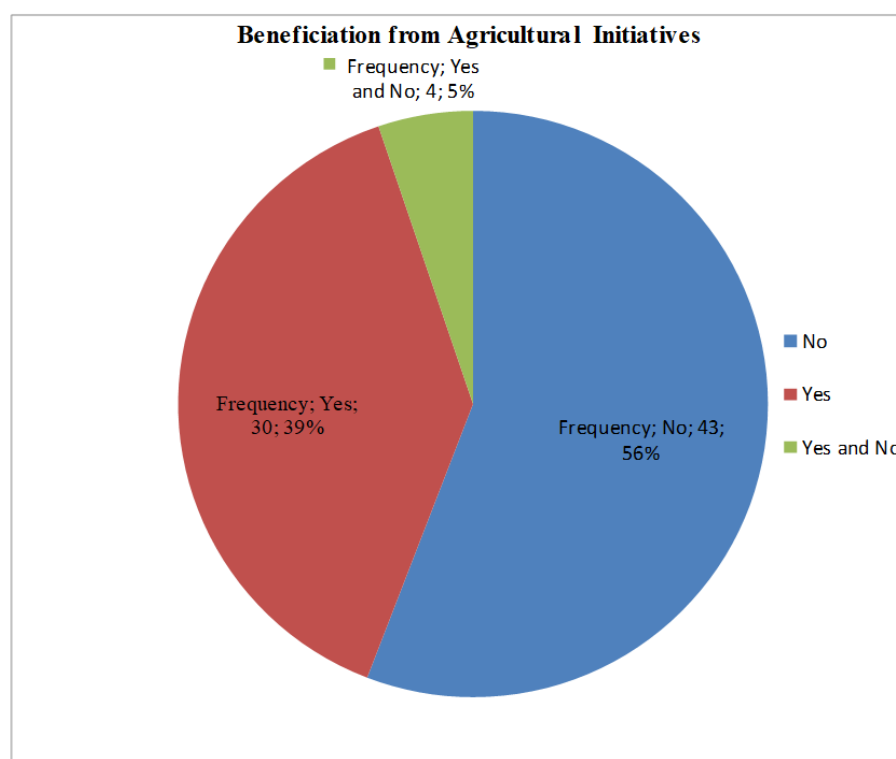


Figure 1. Benefits from any Agricultural initiatives by Age

Figure 1 illustrates participants by age group and their responses to whether they have ever benefited from any agricultural initiatives hosted by the Mnquma local municipality. The graph compares. According to Figure 1 above, the age group with the highest participation is 18 to 30, accounting for the majority of submissions that have never benefited from any agricultural initiatives, with a percentage of 41.56% (32 counts). The green bar represents this group. Within the same 18- to 30-year-old age group, the yellow bar indicates the number of

participants who responded 'yes' to benefiting from agricultural initiatives hosted by the Mmquma local municipality, with a percentage of at least 29.87% (23 counts). The lowest participation is from the youngest age group (16 to 18), with no participants unsure of whether they had benefited from agricultural initiatives hosted by the Mmquma local municipality. Although only 1% of participants submitted 'yes' to benefiting from the initiative in Mmquma, the small percentage coverage from this age group is due to young people hesitating to participate in the questionnaire. As only a very few participated, most young people are not passionate about farming, as the graph proves.

The pie chart illustrates participants' responses regarding the number of years of experience they have in farming. This pie chart reflects a high number of farmers with experience ranging from 1 to 5 years, represented by the orange colour, with a concerning number of just 1.30% of farmers with experience of over 10 years, represented by a yellow colour. This literally means that rural farming in Butterworth is not as advanced, considering. Participants' responses reflect their experiences in farming over the years (Figure 2 below).

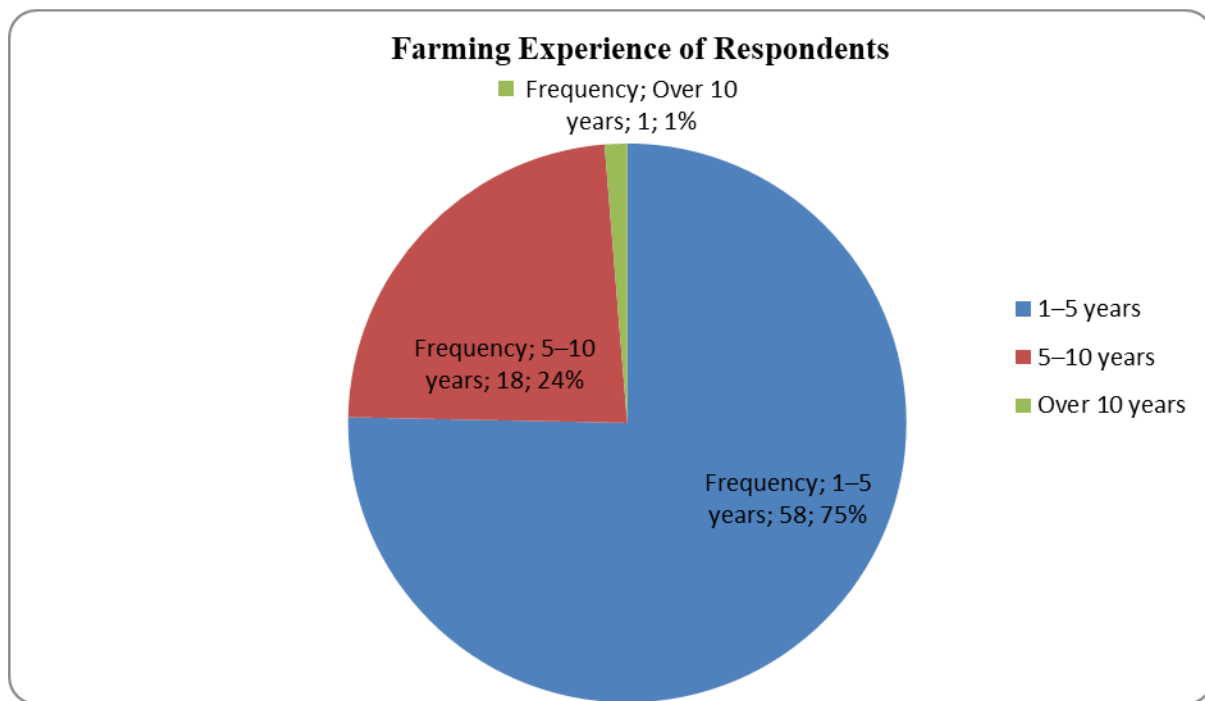


Figure 2. Experience in Farming

The pie chart illustrates participants' responses regarding the number of years of experience they have in farming. This figure reflects a high number of farmers with experience ranging from 1 to 5 years, which is represented by the orange colour. In contrast, a concerning number of just 1.30% of farmers have over 10 years of experience, represented by a yellow colour. This literally means that rural farming in Butterworth is not as advanced, considering that there are no experienced farmers in the area. Although there is a visible experience of 23, 38% of farmers with experience ranging from 5 to 10 years, represented by a purple colour, it is still concerning that small, experienced farmers exist in the Butterworth rural areas.

The level of satisfaction with agricultural support initiatives by rural farmers is presented below in Figure 3.

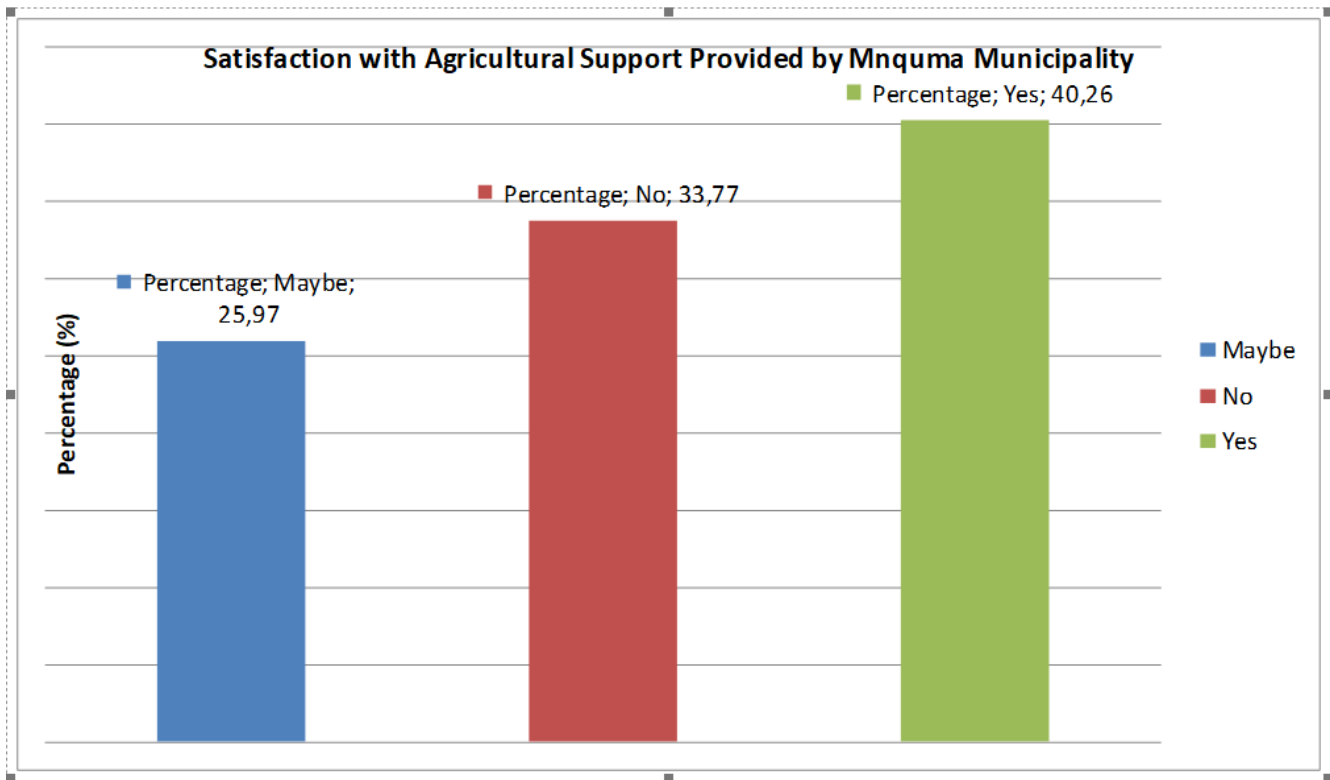


Figure 3. Satisfaction with Agricultural Support

The findings on satisfaction with agricultural support provided by Mnquma Local Municipality reveal a mixed but cautiously positive perception among respondents. A plurality of participants (40.26%) indicated that they were satisfied with the agricultural support received, suggesting that existing initiatives have had some tangible benefits for a segment of farmers in the municipality. This level of satisfaction implies that when support is accessed, it is relevant and responsive to specific farming needs, thereby contributing to improved livelihoods and enhanced local agricultural productivity. However, satisfaction is not overwhelming, indicating that positive impacts are not uniformly experienced across all beneficiaries.

At the same time, a substantial proportion of respondents expressed dissatisfaction (33.77%) or uncertainty (25.97%) regarding municipal agricultural support. The high combined percentage of respondents who are either dissatisfied or unsure points to shortcomings in the reach, consistency, or visibility of agricultural interventions. This may reflect challenges such as uneven distribution of support, limited follow-up, inadequate communication, or misalignment between programme design and farmers' actual needs. In the context of advancing rural prosperity, these findings underscore the need for the Mnquma Local Municipality to strengthen its monitoring and evaluation mechanisms, improve stakeholder engagement, and enhance transparency and feedback systems to build trust and increase overall satisfaction with agricultural support initiatives.

Different agricultural initiatives for rural farmers under the Mnquma Local Municipality are presented below (see Figure 4). Question: If yes, what kind of Agricultural initiatives did you benefit from?

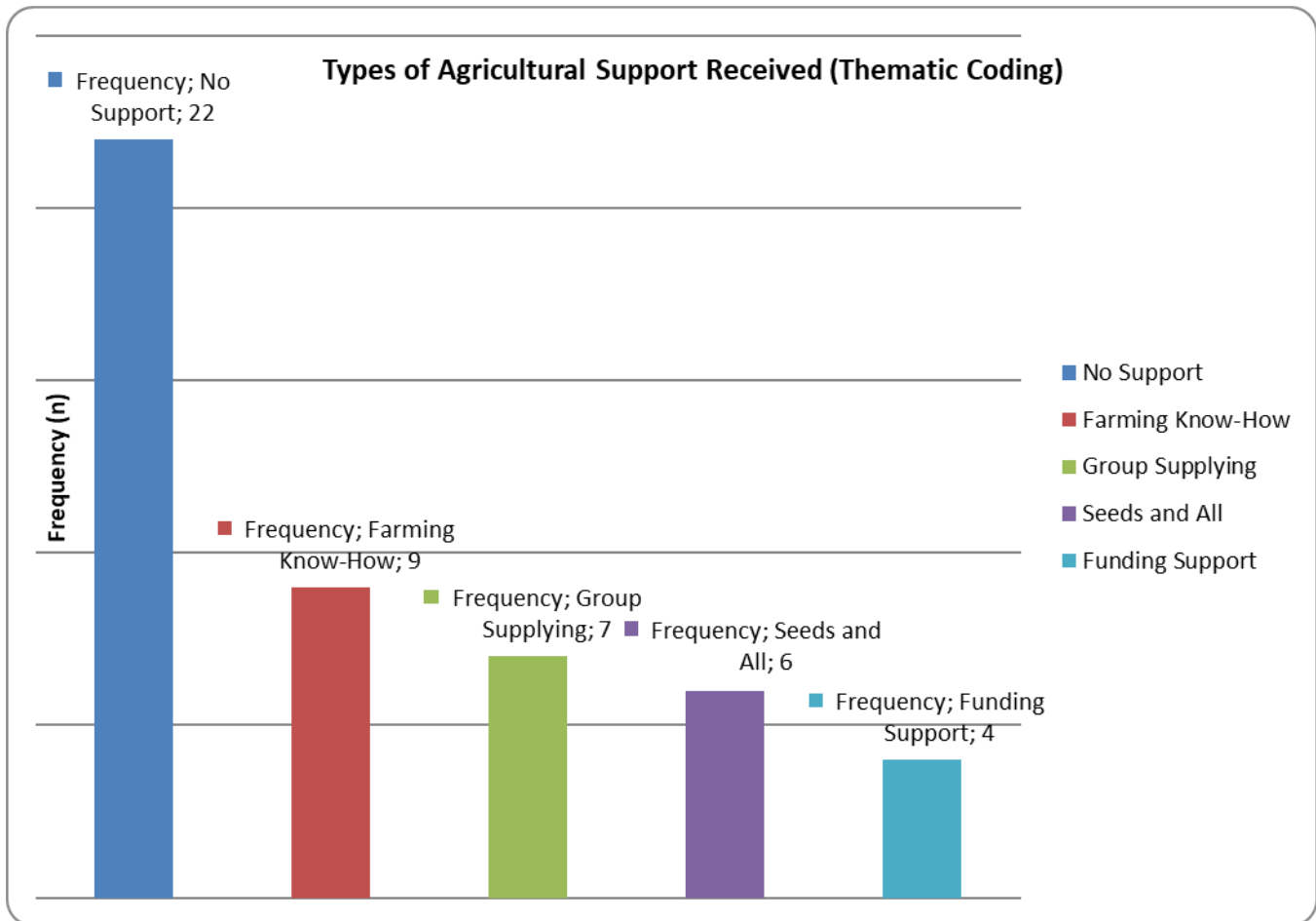


Figure 4. Categories of Agricultural Initiatives

Figure 4 is based on the follow up question made as a subtopic above, by use of thematic approach the answers of the 77 participants were coded by grouping significant accepts which are closely related to the research objective 2, which are funding support represented by green with a total of 4 responders, group supplying represented by blue with 7 responders no support represented by orange with 22 responders, seeds and all represented by purple with 6 responders, farming know how represented by red with 9 responders. In total, 48 out of 77 responders in the survey were selected and assigned to different codes based on their responses.

- Figure 4 displayed five distinct themes through coloured representations.
- No Support (Blue): 22 respondents indicated a complete lack of agricultural support.
- Farming Know-How (Red): The training of agricultural techniques and information dissemination formed the basis of support, according to 9 participants.
- Group Supplying (Green): 7 respondents described the process of agricultural resource distribution through collective group collaboration.
- Seeds and All (Purple): 6 participants stated that they received seeds and other necessary farming resources.
- Funding Support (Turquoise): 4 respondents acknowledged financial assistance to support their farming activities.

The findings on the types of agricultural initiatives experienced by respondents reveal a significant imbalance in the distribution and reach of support within Mnquma Local Municipality. The most prominent response was “no support” (22 respondents), indicating that a large proportion of farmers have not benefited from any form of municipal agricultural initiative. This result reinforces earlier findings, which show limited beneficiary reach, and suggests systemic gaps in programme coverage, targeting, or communication. Despite agriculture being positioned as a driver of rural prosperity, the dominance of non-beneficiaries highlights challenges in translating policy intentions into inclusive and tangible support for rural farmers, particularly smallholders. Among those who received support, farming know-how and training (9 respondents) emerged as the most common form of assistance, followed by group-supplying initiatives (7 respondents) and seed and input support (6 respondents), while direct funding support was the least reported (4 respondents). This pattern suggests that municipal interventions are largely skewed towards capacity-building rather than material or financial support, which may limit farmers' ability to scale production and transition towards commercial agriculture. While skills development is essential, limited access to funding and production inputs constrains the broader impact of such initiatives. In the context of advancing rural prosperity, the findings point to the need for a more balanced and integrated agricultural support framework that combines skills transfer with financial assistance, input provision, and inclusive programme outreach to ensure sustainable agricultural development in the Eastern Cape.

5. Conclusions

The study highlights the critical role of agricultural support initiatives in promoting rural prosperity within the Mnquma Local Municipality in the Eastern Cape. Findings reveal that while current programs have positively impacted rural farmers and generated high satisfaction levels, persistent challenges such as inconsistent support, limited innovation, and inadequate funding continue to constrain sustainable agricultural growth. These shortcomings undermine the potential of agriculture as a driver of local economic development and rural livelihoods.

To address these gaps, the study recommends increasing budget allocations for agricultural programs, expanding the number of farmers supported annually, and standardising skills and innovation within the municipality's agriculture and forestry office. Strengthening monitoring, accountability, and transparency, alongside fostering intergovernmental collaboration, will ensure that support initiatives are both effective and sustainable. Ultimately, empowering rural farmers through comprehensive and innovative strategies is essential for achieving long-term economic development and advancing rural prosperity.

6. Recommendations

Based on the findings, the implementation of specific funding programs should focus on delivering financial support to farmers to purchase necessary farming materials and acquire technology. The agricultural training programs should be expanded to provide farmers with comprehensive training in modern agricultural practices and knowledge. The formation of farmer groups and cooperatives should be encouraged because these entities enable group supply mechanisms which create opportunities for resource sharing and scale advantages. The delivery of essential farming inputs, including seeds and fertilisers, should be made promptly and fairly to facilitate crop production.

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PUBLIC PARTICIPATION DEFICITS AND GOVERNANCE CHALLENGES IN LOCAL GOVERNMENT**Yusuf Lukman ^{1*}, Maxhobandile Ndamase ²**^{1*,2} Faculty of Management and Public Administration Science, Walter Sisulu University, South AfricaE-mail: ^{1*} ylukman@wsu.ac.za (Corresponding author)

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Abstract. Public participation is widely recognised as a cornerstone of democratic local governance, intended to enhance transparency, accountability, and citizen trust in decision-making processes. Despite its constitutional and legislative entrenchment in many democratic systems, meaningful public participation in local government remains largely inadequate, often reduced to symbolic or procedural compliance. This article examines the progression from citizen apathy to overt conflict as a consequence of poor public participation practices in local government. Drawing on relevant democratic governance theories and empirical evidence from local government contexts, the study interrogates how exclusionary, poorly designed, or non-responsive participation mechanisms contribute to declining civic engagement, mistrust in public institutions, and the escalation of community grievances into protests and social conflict. The article employs a qualitative desk-based approach, supported by selected case illustrations, to analyse the structural, institutional, and communicative failures that undermine effective citizen involvement in local decision-making. Key findings reveal that inadequate feedback mechanisms, elite-driven participation processes, limited access to information, and socio-economic inequalities significantly weaken participatory spaces, fostering perceptions of marginalisation and state unresponsiveness. Over time, these conditions entrench citizen apathy, which, when compounded by persistent service delivery failures, often morphs into confrontational and sometimes violent forms of engagement. The article argues that poor public participation is not merely a governance deficit but a critical catalyst of conflict at the local level. It concludes by proposing policy and practice-oriented recommendations aimed at strengthening inclusive, responsive, and deliberative participation frameworks to mitigate conflict, rebuild citizen trust, and promote sustainable local governance.

Keywords: public participation; local governance; citizen apathy; community conflict; democratic accountability; South Africa**Reference** to this paper should be made as follows: Lukman, Y., Ndamase, M. 2026. Public participation deficits and governance challenges in local government. *Insights into Regional Development*, 8(1), 120-138. <http://doi.org/10.70132/j5778559766>**JEL Classifications:** H4**Additional disciplines:** Public Administration**1. Introduction**

Public participation has long been recognised as a core pillar of democratic governance, serving both normative and instrumental functions in local government decision-making. Scholars emphasise that meaningful citizen involvement fosters transparency, accountability, and responsiveness, thereby enhancing the legitimacy of local authorities and public policies. However, despite its salience in democratic theory and public administration praxis, public participation at the local level often remains under-realised in practice, with many formal mechanisms of engagement failing to translate into substantive influence on policy outcomes. Across diverse contexts, participation processes are often reduced to procedural compliance rather than genuine deliberation, thereby limiting citizens' ability to shape public agendas or hold officials accountable for decisions that affect their daily lives.

This implementation gap has significant implications for the dynamics of citizen–state relations at the grassroots level. Weak public participation, characterised by inadequate communication, poor institutional design, and tokenistic engagement, contributes to low levels of civic knowledge and a growing sense of political disconnection among local populations. Empirical studies in local governance contexts reveal that where participation is poorly structured or merely “on paper,” citizens often disengage from formal governance channels and become disillusioned with democratic institutions (Hofer & Kaufmann, 2022; Hofer et al., 2024). In sub-Saharan Africa, local governments, for example, have been linked to weak participatory processes and limited interface mechanisms between citizens and authorities, which have been associated with declining civic engagement and the persistence of local governance challenges, including poor responsiveness to community needs.

Over time, this erosion of civic engagement can create fertile ground for social tensions as frustrated citizens seek alternative avenues to voice grievances and influence public affairs (Baxter et al., 2023; Challoumis et al., 2025). Poorly designed participation mechanisms are associated with diminished public trust. They can act as catalysts for confrontational political behaviour, including protests and service-delivery unrest, particularly when communities perceive exclusion from decision-making and unmet socio-economic needs. Research on procedural justice and community trust in municipal governance shows that a lack of effective citizen involvement not only undermines confidence in local authorities but also heightens the likelihood of conflict when communication mechanisms are absent or inequitably applied (Kanedy, 2025). This paper, therefore, examines how the failure to operationalise meaningful public participation in local government transforms civic apathy into conflict, arguing that poor participatory practices constitute a critical driver of local government instability and inhibit sustainable democratic governance.

2. Problem Statement

Public participation is formally embedded in democratic local governance frameworks to promote inclusivity, accountability, and responsive decision-making. In practice, however, participation at the local government level is often characterised by tokenism, procedural formalism, and limited influence on policy and service delivery outcomes. Despite constitutional mandates, legislative provisions, and institutionalised participation structures, many communities are excluded from meaningful engagement in decisions that directly affect their socio-economic well-being. This disconnect between the normative ideals of participatory governance and lived realities has contributed to declining citizen trust in local authorities, weakening the legitimacy of local government institutions (Fuseini et al, 2025). As participatory processes become inaccessible, poorly communicated, or dominated by political and administrative elites, citizens increasingly disengage from formal governance channels, resulting in widespread apathy and political disillusionment.

The persistence of citizen apathy, however, does not signify acceptance of governance failures; rather, it often represents a latent phase preceding overt conflict. In contexts marked by chronic service delivery deficiencies, socio-economic inequalities, and limited state responsiveness, suppressed grievances tend to accumulate over time. When formal participation mechanisms fail to absorb, process, and respond to community concerns, citizens resort to informal and confrontational modes of engagement, including protests, disruptions, and, at times, violent conflict (Barrios, 2024). This progression from apathy to conflict highlights a critical governance problem: inadequate public participation functions not only as a democratic deficit but also as a catalyst for social instability at the local level. Yet insufficient scholarly attention has been given to systematically examining how flawed participation processes contribute to this transformation. Addressing this gap is essential for understanding the governance conditions under which public participation failures escalate into conflict and for informing the design of more inclusive, responsive, and conflict-sensitive local governance systems.

3. Methodology

This study adopts a qualitative, conceptual research design grounded in a systematic desk-based literature review to examine the relationship between inadequate public participation and the progression from citizen apathy to conflict in local governance. Given the article's conceptual nature, the study does not rely on primary empirical data. Instead, it synthesises existing scholarly and policy-oriented knowledge to develop an integrated theoretical understanding of public participation failures and their governance consequences.

A PRISMA-informed literature review approach was employed to enhance transparency, replicability, and methodological rigour in the identification and selection of relevant sources. While the study does not constitute a full systematic review or meta-analysis, key PRISMA stages, namely identification, screening, eligibility, and inclusion, were adapted to suit the objectives of a conceptual qualitative review.

The literature search was conducted across multiple reputable academic databases to ensure comprehensive coverage. These included Scopus, Web of Science, Google Scholar, JSTOR, and ScienceDirect. Additionally, policy documents and legislative frameworks were sourced from official government websites and international governance institutions, including the United Nations, the World Bank, and the OECD.

The 152 records were gathered at the initial stage, followed by the removal of duplicates and non-relevant titles. A total of 120 sources were then retained for abstract screening. Abstracts were assessed based on relevance to public participation, governance processes, citizen engagement, and conflict dynamics at the local government level. Following this screening stage, 84 full-text documents were reviewed for eligibility.

Applying inclusion criteria, namely conceptual relevance, methodological credibility, and direct engagement with public participation or governance conflicts, resulted in a final corpus of 68 articles selected for the analysis. These sources comprised peer-reviewed journal articles, scholarly books, and government policy papers.

Empirical and conceptual studies consistently demonstrate that perceived deficiencies in public participation are strongly linked to declining institutional legitimacy and increased community tensions. For instance, research highlights how power asymmetries within participatory processes marginalise community voices and weaken developmental outcomes, thereby increasing the likelihood of governance conflict (Sibanda & Lues, 2021). Similarly, deliberative governance scholarship underscores the necessity of meaningful engagement and inclusive dialogue in addressing complex societal challenges (Kismartini et al., 2024).

As a desk-based conceptual study relying exclusively on secondary sources, the research did not involve human participants and therefore did not require formal ethical clearance. Nevertheless, ethical scholarly practices were observed through the use of accurate citations, responsible interpretation of sources, and avoidance of data misrepresentation. The study acknowledges that, while the PRISMA-informed approach enhances transparency, the findings are interpretive in nature and intended to contribute to theoretical understanding rather than empirical generalisation.

4. Legislative Frameworks and Literature Review

4.1. Legislative Frameworks

The 1998 White Paper on Local Government sets out foundational principles for promoting public participation. It asserts that local governments should act as catalysts for development, relying on community involvement to facilitate sustainable governance practices (Thusi et al., 2023). This participatory framework is supported by relevant legislation, such as the Municipal Structures Act, which emphasises the need for municipalities to adopt mechanisms that promote public engagement in decision-making processes. The importance of these legislative

frameworks in establishing local governance as a central component of poverty eradication and development initiatives in South Africa (Mlambo & Maserumule, 2023).

Public participation is enshrined in the South African Constitution, particularly in Section 152, which outlines the objectives of local government. This section states, among other things, that one of the key objectives is "to encourage the involvement of communities and community organisations in local government." This mandate is crucial in fostering a culture of democratic engagement at the local level, ensuring that community voices shape decision-making processes (Surbun, 2021). Furthermore, Section 195 of the Constitution emphasises fundamental principles such as accountability and transparency, which are vital for strengthening public trust in governmental processes (Mamokhere et al., 2021).

Researchers note that although constitutional provisions exist, their implementation often falls short. They point out that local governments must strive to meet these constitutional mandates by developing effective participation mechanisms to engage communities actively in governance (Thusi et al., 2023). The integration of constitutional principles into practice remains vital in addressing service delivery disparities observed historically due to apartheid segregation and inequalities.

The Municipal Systems Act (Act 32 of 2000) builds upon constitutional mandates by outlining specific requirements for municipalities to develop Integrated Development Plans (IDPs) and incorporate community input into these processes. Section 16 of the Act requires municipalities to establish mechanisms, processes, and procedures that promote public participation (Molale, 2022). The IDP serves as the central strategic planning document for local governments, aligning developmental priorities with community needs to ensure that citizens' voices are not only heard but also integrated into planning efforts.

Studies indicate that, despite the requirements set out in the Municipal Systems Act, many municipalities struggle to engage communities throughout the IDP process actively. The study highlights a disconnect between policy intentions and on-the-ground realities, in which communities often feel excluded from crucial decision-making processes (Mamokhere & Meyer, 2022). This gap highlights the need for municipalities to refine their participatory frameworks, adopt innovative communication strategies, and enhance transparency in their operations to meet the specified legal standards (Mamokhere & Meyer, 2022).

IDPs are a crucial mechanism for promoting community engagement in local governance. The IDP aims to outline strategies for local development that integrate community needs into the municipal planning framework. The IDP is not merely a bureaucratic requirement, but a significant tool for collaborative governance, ensuring that community input drives developmental initiatives and service delivery at the grassroots level (Molale, 2022). However, the effectiveness of the IDP process relies heavily on genuine community involvement. Several studies, including that by Mamokhere et al. (2023), emphasise the critical role of active public participation, suggesting that a lack of engagement inhibits the IDP's potential to effectively address historical injustices and current developmental challenges faced by communities. For participation to be fruitful, various mechanisms should be deployed, such as workshops, surveys, and online platforms, to ensure that all community members, particularly marginalised groups, have opportunities to contribute (Thusi et al., 2023).

The Batho Pele Principles, introduced in 1997, serve as a guiding framework for public service delivery in South Africa, underpinning the ethos of participatory governance. These principles advocate for service standards that are accessible, transparent, and responsive to community needs, thus enhancing democratic engagement in public administration (Mamokhere, 2022). The Batho Pele requires municipalities to implement mechanisms that guarantee communities are informed, consulted, and actively involved in municipal affairs (Mamokhere & Meyer, 2022).

Despite their potential, the practical application of Batho Pele principles often encounters challenges, including bureaucratic inertia and a lack of genuine commitment to participatory governance. While the principles are well-intentioned, their implementation is often compromised by systemic shortcomings, such as inadequate training for public officials and limited facilitative resources (Surbun, 2021). Moving forward, municipalities must adopt these principles in theory and translate them into practical actions that genuinely empower local communities (Mamokhere et al., 2021). Bridging these gaps is essential for enhancing accountability, transparency, and legitimacy in local governance. Enhanced public participation, guided by frameworks such as the Batho Pele principles, represents not only a legal obligation but also a moral imperative to ensure that communities actively contribute to their own developmental agendas and needs.

Nevertheless, despite the existence of policy frameworks, the efficacy of public participation remains questionable. Many local communities face barriers that hinder their involvement, leading to widespread dissatisfaction with service delivery. Naidoo (2023) asserts that community participation is vital in promoting quality service delivery and emphasises the role of integrated development plans (IDPs) and national policy frameworks in facilitating this engagement (Naidoo, 2023).

4.2. Literature Review

The guiding theories elaborated upon in the following sections served as the foundational framework for this study, influencing its methodology and analysis.

Participatory Democracy Theory emphasises the active engagement of citizens in the decision-making processes that affect their lives. This model advocates for a more inclusive and deliberative approach to governance, positing that citizens should have direct opportunities to influence public policies rather than merely voting for representatives. Participation is critical for fostering trust between citizens and governmental institutions, thus preventing service delivery protests and enhancing local governance (Msenge & Nzewi, 2021).

According to the foundational principles of participatory democracy, local governance should integrate diverse community inputs into policies and decision-making frameworks. The research by Wright et al. supports this claim, highlighting that participatory approaches can lead to more equitable and responsive governance structures by empowering marginalised groups and ensuring that diverse community voices are heard (Wright et al., 2024). By contrasting participatory systems with traditional representative models, participatory democracy offers a way to decentralise power and create more robust community-consultative frameworks that enhance accountability and responsiveness (Willis et al., 2022).

Deliberative Democracy Theory expands on the tenets of participatory democracy by emphasising reasoned discussion and collective deliberation among citizens as a means to reach consensus on public issues. Scholars such as Johansson (2025) argue that the legitimacy of democratic processes hinges on the inclusion of all affected parties in deliberative discussions where diverse perspectives can be articulated and debated. Deliberative democracy is characterised by its normative focus on equality, inclusiveness, and the requirement that participants justify their arguments rationally, which enables more thoughtful discourse and decision-making (Torney, 2021).

The role of deliberative mini-publics has gained traction, with initiatives across various nations showcasing their effectiveness in facilitating meaningful civic discourse, particularly in addressing complex public issues such as climate change. As highlighted by Willis et al., deliberative mini-publics can play a transformative role by fostering inclusive dialogue among stakeholders who may otherwise be excluded from traditional policymaking venues (Willis et al., 2022). This method also underscores the importance of institutional support for deliberative processes, in which policymakers are encouraged to genuinely engage with deliberation's outcomes and incorporate citizens' voices into policy development (Scudder et al., 2021; Erkuş-Öztürk et al., 2024).

Numerous studies indicate that prevailing socio-political dynamics in South Africa severely hinder effective public participation. Mlambo and Maserumule (2023) highlight the issues arising from cadre deployment within the African National Congress (ANC), which often results in the appointment of unqualified personnel to local government positions. This practice not only undermines effective governance but also exacerbates service delivery failures, further alienating communities from engaging with local governance structures. Additionally, there is a need for moral and competent leadership to ensure sustainable governance and development outcomes in municipalities (Mamokhere, 2022).

Moreover, research has shown that power dynamics and institutional barriers often marginalise community voices in participatory governance (Sibanda & Lues, 2021). For instance, Sibanda and Lues discuss how existing power inequalities and systemic practices can obstruct genuine engagement in the decision-making processes within metropolitan municipalities (Sibanda & Lues, 2021). Such power imbalances lead to a lack of trust in local authorities, driving communities to protest and engage in social unrest to express their discontent (Msenge & Nzewi, 2021). This aligns with Khambule's (2021) findings, which argue that the relationship between the state and society is central to understanding responses to governance failures.

Public participation is not only vital for improving governance but is also essential for fostering local economic development (LED). Kgobe et al. (2023) argue that effective public engagement is crucial in shaping LED strategies within municipalities. They argue that community involvement leads to more equitable economic opportunities and more effective responses to local needs. Additionally, Fourie and Waldt highlight the importance of participatory, integrated development planning, in which community feedback can directly inform and shape development priorities and resource allocation (Fourie & Waldt, 2021).

Despite these insights, continuing challenges remain. Many areas still struggle with inadequate public participation in land-use planning and other critical developmental matters, which often leads to congestion and poor planning outcomes in municipalities (Kgobe & Mamokhere, 2021). This highlights the pressing need for municipalities to enhance participatory processes, ensuring that community voices are not only heard but also actively shape local governance outcomes.

Systemic issues, including unqualified leadership, power imbalances, and socio-economic disparities, hinder the effectiveness of public participation. Addressing these challenges is crucial for promoting greater civic engagement, enhancing service delivery, and fostering sustainable development in municipal governance. Future research should focus on innovative strategies to overcome barriers to participation and empower communities as active stakeholders in their local governments (Matloga et al., 2024).

Ward committees play a significant role in enhancing local governance by serving as a platform for community engagement and participation. Established under the Municipal Systems Act, these committees are tasked with facilitating effective communication between the municipality and residents, thereby promoting transparency and accountability (Mamokhere & Meyer, 2022). Mandated to represent the interests of the community within specific geographic areas, ward committees enable citizens to have a direct input on local decisions, thereby fostering a sense of ownership and responsibility concerning municipal governance (Mamokhere, 2022).

Public hearings, IDP consultations, and imbizo (public gatherings for consultation and dialogue) are vital mechanisms for fostering public participation in local governance. Public hearings provide structured opportunities for stakeholders to voice their opinions on proposed policies, projects, or changes within the municipality. These forums are essential for ensuring that community members are not merely passive recipients of information but are actively engaged in the decision-making process (Mamokhere & Meyer, 2022).

IDP consultations serve a similar purpose, explicitly focusing on the development of the Integrated Development Plan. This plan outlines the municipality's strategic priorities and resource allocations for a specified period. The effectiveness of IDP consultations depends heavily on their ability to draw meaningful public input, as the success of developmental initiatives hinges on accurately reflecting community needs and priorities (Molale, 2022). Furthermore, imbizo serve as an inclusive platform whereby community members can engage directly with municipal leaders and express concerns or suggestions about governance and service delivery. Naidoo notes that the impact of these initiatives can be profound, as they promote active citizen involvement and enhance local government accountability (Naidoo, 2023).

Councillors and municipal officials play crucial roles in facilitating public participation and ensuring that community voices influence local governance decisions. Councillors, as elected representatives, are tasked with advocating for their constituents' interests, thereby bridging the gap between the municipality and the community. They are instrumental in promoting participatory governance by creating awareness of participation opportunities, attending public meetings, and providing feedback on community input (Boboyi, 2025).

Municipal officials, on the other hand, are responsible for implementing participatory processes effectively. Their role involves not just organising public consultations but also ensuring that the information gathered from these engagements is communicated back to the community (Selepe, 2023). If municipal officials and councillors remain responsive to community concerns and feedback, they can significantly enhance the quality and effectiveness of public participation in local governance.

The advent of digital technologies has opened new avenues for public participation, giving rise to e-participation initiatives that enhance citizen engagement in local governance. E-participation refers to the use of digital platforms to facilitate communication and collaboration between government authorities and citizens, thereby expanding access to information and enabling broader community involvement (Molobela, 2025).

Mulaudzi et al. argue that e-participation can provide tools for continuous stakeholder engagement, allowing for real-time feedback and adaptive governance (Mulaudzi et al., 2023). However, challenges remain concerning digital literacy and access to technology, as highlighted by the ongoing digital divide, particularly in rural communities. Addressing these disparities is essential to ensure that e-participation initiatives do not exclude those who lack the necessary technological resources or skills to engage effectively (Sibanda & Lues, 2021). Therefore, municipalities must adopt inclusive strategies that integrate traditional participatory methods alongside emerging digital solutions to foster comprehensive and meaningful community engagement. Challenges such as ineffective communication, barriers to participation, and the digital divide necessitate ongoing efforts to enhance participatory practices and ensure that local governance truly serves the interests of all community members.

Inclusivity in public participation processes is pivotal to ensuring diverse community representation and engagement. According to Heinbach, deliberative discussions should be open to all citizens, enabling them to express their attitudes, desires, and needs (Heinbach, 2022). This notion of inclusivity demands that mechanisms be established to facilitate participation by marginalised and underrepresented groups, enhancing their voices in local governance. In contrast, exclusivity in participation can lead to significant democratic deficits, undermining the effectiveness of governance systems and public trust (Zamharir & Lubis, 2021).

Accessibility is essential not only for physical attendance at participatory events but also for providing resources and support that enable citizens to engage meaningfully. These may include providing materials in multiple languages, accessible venues, and necessary technological support to bridge the digital divide. Effective participation relies on robust information dissemination strategies that keep citizens informed about decision-making processes and opportunities for involvement. Public hearings can serve as foundational elements for

enhancing interaction between government and the public, facilitating feedback loops that are essential for responsive governance (Bukina et al., 2021).

Feedback mechanisms are crucial because they enable municipalities to convey how community input has shaped policies and decisions. Between citizens and local authorities, enhanced legitimacy and trust ultimately reinforce citizen engagement (Lember et al., 2022). The absence of effective feedback can lead to disillusionment among citizens, who may feel their voices are not valued, potentially leading to apathy toward future participatory opportunities.

Challenges in local governance often stem from capacity constraints and political interference, which significantly inhibit effective public participation. Capacity constraints refer to the lack of necessary resources, such as trained personnel, financial capabilities, and technological infrastructure, that hinder municipalities from implementing participation initiatives successfully (Raveau et al., 2022). This situation is exacerbated when political interests overshadow genuine community engagement, as political actors may manipulate participatory processes for their gain, diluting the authenticity of community voices (Taufiq & Hidayat, 2022).

Research suggests that when local governments lack efficient administrative capacity, they struggle to adhere to participatory mandates, leading to tokenistic practices that do not promote authentic community involvement (Taufiq & Hidayat, 2022). Therefore, addressing these capacity issues, alongside minimising political interference, is crucial to achieving meaningful public participation.

Tokenism in public participation refers to superficial compliance with participatory mandates, characterised by a lack of genuine engagement or responsiveness to citizen input. It often manifests in scenarios where local governments conduct public consultations merely to fulfil legal obligations, without a commitment to incorporating community feedback into actual decision-making processes. The risks associated with tokenism suggest that such practices can lead to community disillusionment and apathy toward governance (Zamharir & Lubis, 2021).

The challenge of procedural compliance is often underpinned by bureaucratic inertia, where the focus remains on following established processes rather than fostering genuine interaction with constituents. As a result, important opportunities for citizen engagement are lost, leading to perceptions of ineffectiveness and inefficiency within local governments (Raveau et al., 2022). Overcoming tokenism requires a shift in mindset among governmental actors, where participatory processes are embedded into the organisational culture and viewed as essential to effective governance.

Effective public participation is critical for enhancing accountability in local governance. Citizen engagement channels, such as public hearings and ward committees, empower citizens to demand answers and transparency from their elected representatives. Participatory structures can be effective tools for holding local officials accountable for their actions, provided they are designed to ensure meaningful engagement (Fitzgerald et al., 2021).

Public participation fosters oversight by allowing citizens to express their needs and expectations, creating a direct line of accountability between the government and the communities it serves. Furthermore, accountability is enhanced when citizens perceive their participation as influential in shaping policies and outcomes. This perception can improve trust in public institutions and diminish instances of neglect and disenchantment among communities (Raj, 2023).

The relationship between public participation, trust, and legitimacy in local governance is crucial. Trust in government has a significant impact on citizen engagement, with perceptions of legitimacy being crucial for

public buy-in. Citizens are more likely to participate when they believe that local officials are acting in the community's best interests and when they perceive the decision-making process as transparent and inclusive (Raj, 2023).

Haqbeen et al. (2021) note that when participatory processes are inclusive and genuinely reflect community interests, citizens develop greater trust in governmental institutions. Conversely, inadequate participation can breed scepticism and cynicism towards local governments, further weakening public trust and diminishing civic engagement (Haqbeen et al., 2021). Building trust, therefore, requires local officials to listen to community concerns actively and consistently demonstrate that public input is valued and integrated into decision-making processes.

Persistent participation deficits can erode citizens' institutional confidence. As noted by Yi and Qiu (2024). When citizens perceive that their participation has no meaningful impact on governance, they may withdraw from civic engagement, thereby exacerbating apathy and disengagement. Declining institutional confidence can have long-term implications for democratic legitimacy and social cohesion, as disillusioned communities are less inclined to participate in processes critical for social and political development.

Moreover, socio-economic exclusion plays a significant role in contributing to participation deficits. Economic disparities often restrict access to participatory platforms, leaving historically marginalised communities at a higher risk of barriers to involvement (Heinbach, 2022). Addressing these socio-economic constraints, alongside ensuring that participatory processes are genuinely inclusive, is essential to rebuilding confidence in local institutions and encouraging active civic engagement. Socio-economic exclusion significantly contributes to participation fatigue, wherein individuals from disadvantaged backgrounds may feel that engagement efforts are futile due to systemic barriers. Raveau et al. (2022) argue that participation fatigue can arise when citizens believe their contributions do not lead to tangible improvements in their communities, ultimately resulting in withdrawal from public life. Moreover, the prevalence of socio-economic inequalities can limit individuals' ability to engage with governance processes due to factors such as transportation challenges, limited access to information, and time constraints. This underscores the necessity for municipalities to adopt comprehensive strategies that address these barriers, promoting inclusivity and facilitating active participation among all community segments.

Declining attendance in formal participatory platforms poses a significant challenge for local governance. Research indicates that the frequency of community engagement in local meetings, such as public hearings and consultations, has diminished over recent years. This decline can be attributed to various factors, including ineffectual processes that fail to yield concrete outcomes, a lack of trust in local authorities, and competing demands on community members' time (Fitzgerald et al., 2021).

As outlined by Sukarso et al. (2023), addressing declining attendance requires re-evaluating participatory processes, modernising approaches to engage citizens, and utilising methods that resonate with contemporary community dynamics. By investigating the reasons behind attendance drops and proactively addressing identified concerns, local governments can work towards revitalising civic engagement and encouraging participation in local governance. Addressing participation deficits and citizen apathy through targeted strategies will bolster institutional confidence and rebuild trust in local governments. Ultimately, fostering an inclusive, engaging, and responsive public participation landscape is vital for strengthening democratic governance and enhancing community well-being.

In many contemporary local governance contexts, particularly in South Africa, service delivery protests have become increasingly prevalent, showcasing the urgent need for effective public participation mechanisms. Service delivery failures often escalate into community resistance and protests when residents feel that their concerns are neglected by local authorities (Msenge & Nzewi, 2021). These protests are not mere expressions of dissatisfaction

but rather reflect deeper systemic issues, including historical inequities and a lack of responsiveness that culminate in civic unrest.

Public protests become a manifestation of accumulated grievances, representing communities' demands for accountability and improved service provisions. The work by Msenge and Nzewi (2021) demonstrates how fragmented local governance and a lack of coordination can exacerbate these tensions, leading to chaotic responses that further alienate communities from local government. Thus, understanding the roots of these service delivery protests is essential for grasping the dynamics between civic engagement and governance failures. A critical driver of unrest in local governance contexts is the persistent exclusion and marginalisation of certain social groups from participatory processes. This exclusion fosters an environment in which grievances accumulate over time, ultimately transforming into larger conflict dynamics (Noutchie, 2025). The Anglophone Crisis in Cameroon exemplifies how historical grievances, compounded by political exclusion, can escalate tensions and conflicts (Noutchie, 2025). Study highlighted that marginalised communities often perceive local government as distant, unresponsive, and representative of only a select few (Noutchie, 2025). This perception hinders efforts toward inclusive governance and embeds a cycle of grievance accumulation. Recognising and addressing these exclusionary practices is thus crucial in mitigating conflict and fostering a responsive governance environment.

Disengagement from public affairs often results from perceived inadequacies in participatory practices, leading communities to feel that their voices are not valued. The pathway from disengagement to confrontation, where citizens, feeling powerless, resort to protests as their primary means of expression (Msenge & Nzewi, 2021). This cycle indicates a failure of local governance structures to provide adequate feedback loops and genuine opportunities for engagement, amplifying community frustrations into confrontational tactics. Moreover, Froese et al. (2022) stress the importance of resolving initial grievances before they escalate. When grievances remain unaddressed, they can perpetuate frustrations and incite wider community unrest, thereby endangering social stability. Identifying and intervening early in these disengagement patterns is essential to preventing further escalation.

Participatory governance has the potential to foster social cohesion by involving communities in decision-making processes that affect their lives. Emphasising inclusivity in participatory frameworks enables previously marginalised voices to be articulated, fostering a sense of belonging and ownership among community members (Davids et al., 2021). When local governments integrate participatory practices into governance, they nurture trust, thereby reinforcing communal ties (David et al., 2021).

Effective participatory governance mechanisms, such as inclusive public consultations, enhance social cohesion by providing a platform for open dialogue between citizens and officials. This process not only promotes accountability but also cultivates a more informed citizenry that actively contributes to decision-making (Msenge & Nzewi, 2021). The role of local institutions in facilitating such participatory mechanisms is crucial for establishing a foundation for long-term cooperation and conflict prevention.

Constructive dialogue is a critical component in transforming grievances into actionable responses within local governance structures. The ability of local governments to engage in meaningful dialogue with citizens enhances the potential for grievance redress. Tello et al. (2025) highlight a successful framework in which community health teams operate as intermediaries, relaying community concerns to municipal authorities and thereby facilitating feedback loops. This model illustrates the importance of institutionalising channels for effective communication between citizens and local governance structures.

Furthermore, participatory models that prioritise responsiveness can significantly enhance citizen perceptions of legitimacy in local governance. An open dialogue between local authorities and communities creates pathways for addressing grievances, ultimately fostering a climate of trust and collaboration (Al-Mulki et al., 2022). By

transforming participation from a mere formality into a reciprocal exchange, local governments can proactively address community concerns before they escalate into larger conflicts.

To prevent conflict and build resilient governance systems, it is essential to strengthen participatory institutions. This involves not only enhancing existing frameworks but also ensuring that they are adaptive to the evolving needs of the community. Urban local bodies must actively invest in mechanisms for citizen engagement, transparent communication, and grievance redress (Gupta & Mishra, 2024).

Strengthening these institutions requires a holistic approach that addresses both structural deficiencies and capacity constraints within local government systems. Public participation should be a core of good governance, fostering an environment of trust and common purpose between citizens and their representatives (Davids et al., 2021). By investing in participatory infrastructure, local governments can transition from reactive measures to proactive governance, ultimately reducing the potential for conflict. Strengthening participatory institutions is crucial for addressing community grievances and promoting social cohesion, thereby ensuring that local governance effectively meets the diverse needs of all citizens.

5. Synthesis of Literature and Identified Gaps

5.1. Synthesis of Literature

A significant body of literature has emerged on public participation, governance, and conflict in local government settings. The key debates highlight the sophisticated interplay between community engagement, service delivery, and governance responsiveness. Scholars have suggested that effective public participation can enhance government performance, particularly in taxation and resource allocation, ultimately benefiting public trust and governance outcomes (Mulyanti et al., 2024; Sobikwa & Phooko, 2021).

Conversely, concerns have arisen regarding the quality of participation, particularly in contexts where tokenism prevails in participatory initiatives. Klimko et al. (2023) discuss how participatory budgeting, while a promising strategy for enhancing democratic outcomes, often falls short in practice due to inadequate mechanisms for genuine community involvement, illustrating a critical debate about whether existing participatory frameworks lead to meaningful citizen engagement or simply serve as bureaucratic checklists (Klimko et al., 2023).

Empirical studies also emphasise barriers to effective public participation, such as socio-economic disparities and systemic exclusion, underscoring the need for participatory models that actively engage marginalised communities (Selepe, 2023; Cheruiyot, 2023). The discussion surrounding the impact of digital engagement strategies is gaining traction, with studies by Azhar and Hutete (2023) highlighting the transformative potential of e-participation if implemented thoughtfully, while also noting the caveat of the digital divide, which can exacerbate existing inequalities in civic engagement (Azhar, 2023; Hutete & Sibanda, 2022).

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Empirical studies also emphasise the barriers to effective public participation, such as socio-economic disparities and systemic exclusion, as observed by Cheruiyot (2023), underscoring the necessity of participatory models that actively seek to engage marginalised communities (Cheruiyot, 2023). The discussion surrounding the impact of digital engagement strategies is gaining traction, with studies highlighting the transformative potential of e-participation if implemented thoughtfully, while also noting the caveat of the digital divide, which can exacerbate existing inequalities in civic engagement (Hutete & Sibanda, 2022; Azhar, 2023).

5.2. Identified Gaps in Existing Studies

1. *Insufficient Longitudinal Research.* Although many studies have assessed the efficacy of public participation, there is a notable lack of longitudinal analyses that explore how participatory practices evolve and impact community relations with local governance systems (Mazenda et al., 2021; Thusi et al., 2023).
2. *Limited Focus on Marginalised Groups.* Existing literature often overlooks the experiences and barriers faced by marginalised communities in participatory processes. While studies acknowledge the importance of inclusive practices, they often overlook the nuanced challenges that specific demographic groups encounter when interacting with local governance (Dahal, 2021; Bakhtawar et al., 2022).
3. *Digital Participation Strategies.* Despite the noted potential for e-participation, empirical research evaluating the effectiveness of these digital mechanisms in enhancing public service delivery and civic engagement remains scarce. Current studies fall short in analysing how digital platforms can be designed to accommodate varying levels of digital literacy and access (Dahal, 2021; Azhar, 2023).
4. *Integration of Theoretical Frameworks.* Current studies, such as those by Ansell and Torfing, provide a theoretical lens on co-creation in governance but lack empirical substantiation regarding how these theories translate into actionable practices on the ground (Ansell & Torfing, 2024).
5. *Institutional Responses to Participation Failures.* The existing literature provides limited insights into how local governments adapt or reform their practices in response to participation-related conflicts or service delivery protests, presenting a gap in understanding institutional learning and resilience (Msenge & Nzewi, 2021; Noutchie, 2025).

5.3. Contribution of the Current Study

This study aims to bridge the identified gaps by investigating the mechanisms of public participation within the framework of local governance and their implications for community cohesion and conflict resolution. It seeks to employ a mixed-methods approach that combines both qualitative and quantitative analyses to comprehensively assess the effectiveness of participatory practices, particularly in marginalised communities.

The authors suggested *Model of Public Participation Ranges from Apathy to Conflict* (see Figure 1) and *Structured Conceptual Framework Synthesis* (see Figure 2).

Figure 1 conceptually illustrates public participation as a continuum that evolves from limited inclusivity to active conflict, demonstrating how deficiencies in participatory governance progressively destabilise citizen–state relations. At the base of the model, *limited inclusivity* and *weak communication and feedback* reflect participation processes that exclude marginalised groups, provide inadequate information, and fail to create meaningful dialogue. These conditions give rise to *tokenistic engagement*, where participation exists largely for the sake of procedural compliance rather than genuine influence on decision-making. As institutional responsiveness remains low, citizens perceive participation platforms as ineffective and symbolic, leading to a gradual erosion of trust in

local authorities. This stage marks the initial governance failure, where formal participatory mechanisms exist but lack depth, responsiveness, and legitimacy.



Figure 1. Model of Public Participation Ranges from Apathy to Conflict

As the model ascends, persistent exclusion and non-responsiveness lead to *civic apathy*, characterised by citizens' withdrawal from formal participation channels, such as public meetings, consultations, and ward committees. Over time, unresolved concerns and unmet service delivery expectations *accumulate into grievances*, transforming passive disengagement into frustration and resentment. When institutional avenues remain closed or unresponsive, communities increasingly turn to informal mobilisation and protests as alternative means of expressing demands. At the apex of the continuum, these dynamics culminate in instability and a breakdown of citizen–state relations, where conflict becomes overt and, in some cases, violent. Figure 1 thus reinforces the study's central argument that inadequate public participation is not a neutral administrative weakness but a critical catalyst that drives the transition from apathy to conflict in local governance contexts.

Structured Conceptual Framework Synthesis illustrates the causal pathways through which poor public participation in local governance shapes citizen perceptions, behavioural responses, and conflict dynamics. It further identifies strategic intervention levers necessary to reverse adverse governance outcomes and restore meaningful citizen–state engagement.

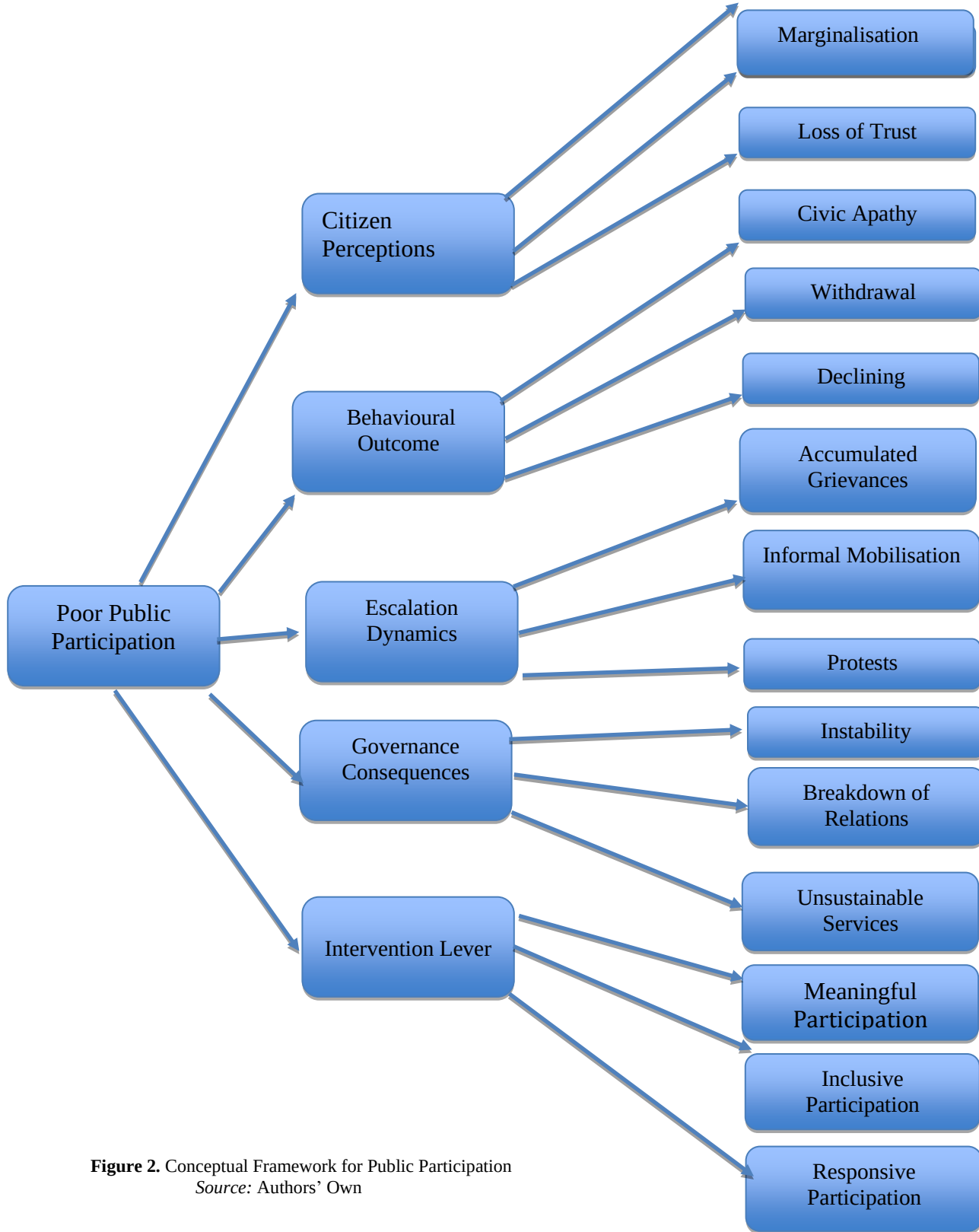


Figure 2. Conceptual Framework for Public Participation
Source: Authors' Own

The framework posits that poor public participation is the central driver influencing multiple, interconnected governance outcomes. At the perceptual level, exclusionary and ineffective participation processes generate feelings of marginalisation, powerlessness, and loss of trust among citizens. These negative perceptions translate into observable behavioural outcomes, including civic apathy, withdrawal from formal participatory platforms, and declining institutional legitimacy. As citizens perceive that their voices carry little influence in decision-making, participation shifts from engagement to disengagement, weakening the democratic foundations of local governance and reducing the effectiveness of policy and service delivery interventions.

As these conditions persist, the framework demonstrates how behavioural disengagement escalates into conflictual dynamics. Accumulated grievances, coupled with institutional unresponsiveness, fuel informal mobilisation and protests, signalling a breakdown in formal governance channels. These escalation dynamics have broader governance consequences, including instability, fractured citizen-government relations, and unsustainable service delivery systems. Notably, the framework also highlights an *intervention lever*, emphasising that these negative trajectories are not inevitable. By strengthening meaningful, inclusive, and responsive participation mechanisms, local governments can disrupt the cycle of apathy and conflict, rebuild trust, enhance legitimacy, and promote sustainable and collaborative local governance.

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SCALING LIVING LABS IN EGYPT THROUGH THE QUINTUPLE HELIX: FUTURE POLICY OPTIONS FROM A FUZZY DELPHI STUDY**Mohamed Ramadan A. Rezk¹, Leonardo Piccinetti², Donatella Santoro³, Nahed Salem⁴, Trevor Uyi Omoruyi⁵, Solomon E. Uhunamure⁶, Mohammed Mahgoub Hassan⁷, Alaa A. El-Bary⁸**^{1,4}Academy of Scientific Research and Technology (ASRT), 11516, Cairo, Egypt²Sustainable Innovation Technology Services Ltd, Ducart Suite, Castletroy, Ireland³REDINN, Italy⁵Chester Business School, Queens Park Campus, Chester, United Kingdom⁶Institute for Humanities in Africa, University of Cape Town, Cape Town 7700, South Africa⁷National Center for Research, Ministry of Higher Education and Scientific Research, Sudan⁸Arab Academy for Science, Technology and Maritime Transport, P.O. Box 1029, Alexandria, EgyptE-mails: ¹mramadan79@gmail.com; ²leonardo@sinnovations.org; ³donatella@sinnovations.org;⁴nahedelashkar.asrt@gmail.com; ⁵t.omoruyi@chester.ac.uk; ⁶Solomon.uhunamure@uct.ac.za; ⁷mohkadis74@gmail.com;⁸aaelbary@aast.edu

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Abstract. This study explores how Egypt's Living Labs can transition from isolated, fragmented pilot projects to a scalable and institutionally integrated system within the Egyptian innovation ecosystem. While current research often focuses on developing and studying the various types of living labs already integrated into the innovation ecosystems of many countries, this paper examines the issues of scaling up within the Egyptian innovation ecosystem. It adopts a Quintuple Helix framework that conceptualizes government, industry, academia, civil society, and the natural environment as interdependent actors shaping sustainable development. The research follows a three-phase design: (i) a structured literature review to generate an initial set of 40 policy options; (ii) translation of these options into a Delphi questionnaire, refined through expert review; and (iii) evaluation using the Fuzzy Delphi Method with a purposive panel of 20 experts representing the five helix domains. Policy options were retained only when they satisfied all predefined criteria ($d \leq 0.2$, expert consensus $\geq 75\%$, and defuzzification score $A \geq 0.5$). The results show a high level of agreement overall. In total, 34 of the 40 proposed policy options were retained, corresponding to an overall validation rate of 85.0%. The strongest alignment appeared in Academia/Research and Civil Society/NGOs, where all 8 of 8 options were retained (100.0%). In Government/Public Sector, Industry/Business, and Environment/Sustainability, 6 of 8 options were retained in each domain (75.0%). Taken together, the findings indicate that scaling Living Labs in Egypt depends on a coherent policy setup one that emphasizes clear governance arrangements, reliable public funding, shared evaluation standards, institutional learning, routes to commercialization, broad and inclusive participation, and stronger integration of environmental priorities. Overall, the study offers an empirically supported, policy-focused model to help embed Living Labs more firmly within Egypt's innovation system and support their long-term growth.

Keywords: Living Labs; Quintuple Helix; Fuzzy Delphi Method; policy scaling; sustainable innovation; Egypt

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JEL Classifications: O1, O32, O35

1. Introduction

Egypt is increasingly challenged to develop an innovation system that is economically productive while also socially inclusive, responsive to regional needs, and environmentally sustainable. These demands are further intensified by the country's parallel efforts to advance economic modernization, institutional reform, digital transformation, and greater climate resilience. At the policy level, Egypt Vision 2030 positions innovation, scientific research, and technology as fundamental drivers of national competitiveness and sustainable development, while also emphasizing the importance of participatory governance, balanced regional development, and institutional effectiveness (Egypt Vision 2030, 2016). The strategy states that by 2030 Egypt aims to build “a competitive, balanced, and diversified economy, based on knowledge and innovation,” supported by a “just, inclusive, and participatory society” and a sustainable ecosystem (Egypt Vision 2030, 2016). Within this policy context, the significance of Egypt's national strategies lies not only in defining broad development and innovation priorities, but also in the pressing need to identify practical mechanisms capable of translating these ambitions into effective action. Although Egypt Vision 2030 and related frameworks strongly endorse the advancement of a knowledge-based economy, social equity, digitalization, and sustainability, the key challenge remains the implementation of these goals through participatory and context-sensitive approaches.

In this regard, living labs offer a particularly relevant model, as they function as an applied interface between strategic policy objectives and innovation in practice (Almeida & Deutsch, 2025). By fostering collaborative environments that connect government, academia, industry, and civil society, living labs enable the co-creation, testing, and refinement of solutions in real-life settings, making innovation more responsive to local needs and more closely aligned with Egypt's broader development agenda. At the same time, while many institutions have increasingly moved toward supporting living-lab-type initiatives, this expansion is not always accompanied by sufficient conceptual clarity regarding what living labs entail. In many cases, the term is used loosely or interchangeably with other formats, such as innovation hubs, accelerator spaces, or pilot environments, without fully reflecting the defining features of the living lab approach, including experimentation in real-world contexts, active user involvement, and structured multi-stakeholder collaboration. Consequently, the challenge in the Egyptian context is not only to expand support for innovation initiatives, but also to establish a clearer and more consistent understanding of the living lab concept so that it can be applied in a meaningful and effective manner.

1.1. Living Labs as a Mechanism for Collaborative Innovation

Living labs have increasingly gained prominence as an important approach for understanding how innovation can be developed through participatory, context-sensitive, and practice-oriented processes. In the literature, they are described as real-life platforms or environments for collaborative innovation that emphasize the active engagement of users and stakeholders in innovation activities (Fuglsang & Hansen, 2021; Gascó, 2016; Dekker et al., 2019). They are also conceptualized as user-centered, open innovation ecosystems built on systematic co-creation, integrating research and innovation processes within real-life communities and settings (Ballon et al., 2005). In this sense, living labs function not only as spaces for experimentation, but also as collaborative frameworks that support open innovation, citizen co-production, and the co-creation and testing of solutions in real-world contexts (Paskaleva & Cooper, 2021). Moreover, they are organized as open-innovation networks in which multiple stakeholders collaborate to generate shared value through interaction, experimentation, and collective learning (Leminen et al., 2012).

The practical significance of living labs lies in their capacity to bring together diverse actors including public institutions, private sector organizations, academic institutions, civil society, and end users to co-create, prototype, validate, and test technologies, services, products, and systems under real-world conditions (Riaño-Herrera et al., 2025; Sarkki et al., 2025). They also facilitate open knowledge exchange and direct communication, often reducing conventional hierarchies and fostering a shared vision among participants (Stuckrath et al., 2025), while providing platforms for experimentation and iterative learning through continuous testing and refinement based

on stakeholder feedback (Arioz et al., 2024). Reflecting this flexibility, living labs have been applied across a wide range of domains, including urban and rural development (Leminen et al., 2021; Almeida & Deutsch, 2025), healthcare (Shin et al., 2025; Fan et al., 2025), environmental and agricultural sustainability (Beaudoin et al., 2022; James et al., 2025), and higher education and campus sustainability (Masseck, 2017; Choe & Kim, 2024). At the same time, literature highlights important conceptual and practical challenges, particularly the lack of a unified definition, which complicates the systematic development and evaluation of living labs (Ceseracciu et al., 2023), as well as ongoing concerns regarding their scalability, long-term sustainability, and the effective integration of their outcomes into policymaking and broader institutional systems (Fuglsang & Hansen, 2021).

The scaling of living labs remains a significant issue in literature, as many initiatives struggle to progress from localized experimentation to broader and more durable forms of institutionalization. A major obstacle is governance complexity, since successful scaling often depends on enabling institutional arrangements that can support the wider diffusion of innovations developed within living lab settings. In this respect, supportive governance structures, including the concept of a “living lab within a lab,” have been identified as important mechanisms for facilitating the scaling of digital innovations (Mukherjee et al., 2023). At the same time, ambiguity in the internal operations and emergence processes of living labs complicates replication and scaling, contributing to their characterization as obscure, ad hoc, and eclectic forms of innovation practice (Herth et al., 2024). This lack of procedural clarity reduces the transferability of living lab models and constrains systematic scaling across contexts.

The challenge is further compounded by temporal, organizational, and systemic constraints. In particular, the relatively short duration of many living lab projects often does not align with the long-term nature of the societal and institutional issues they seek to address, thereby undermining both scalability and sustainability (Pisello et al., 2025). Moreover, prior research indicates that the sustainability and scalability of living labs are strongly dependent on the quality of the learning processes they generate and the environments in which they operate (Hossain et al., 2018). More broadly, scaling living labs in emerging innovation systems is understood as a multidimensional challenge involving governance, stakeholder engagement, sustainability, standardization, knowledge transfer, and methodological coherence. Consequently, although many living lab initiatives achieve success at the project level, they often fail to scale institutionally, financially, or territorially (Blezer & Abujidi, 2021). The issue, therefore, extends beyond replication alone and concerns whether local experimentation can become embedded within governance systems, policy routines, funding mechanisms, and evaluation frameworks, thereby strengthening the broader policy influence of living labs (Bhatta et al., 2025).

1.2. Integration of Living Labs within the Quintuple Helix Framework

The integration of Living Labs within the Quintuple Helix framework has become increasingly prominent in contemporary innovation and sustainability literature. Living Labs are widely recognized as practical applications of the Quintuple Helix model because they create real-world environments in which diverse stakeholders, including actors associated with the natural environment, can actively participate in collaborative innovation processes (Almeida & Deutsch, 2025). The Quintuple Helix model extends the earlier Triple Helix and Quadruple Helix frameworks by explicitly introducing the natural environment as a fifth subsystem, alongside academia, industry, government, and civil society (Maruccia et al., 2020). Through this expansion, the model broadens the understanding of innovation systems by positioning the ecological sphere as both a driver of innovation and a beneficiary of innovation outcomes. In this way, the framework is closely linked to sustainable development and to broader socio-ecological transitions in both economic and societal contexts (Dewika et al., 2024; Yang & Park, 2025).

A central contribution of the Quintuple Helix perspective is that it emphasizes the importance of ecological balance and sustainability in innovation processes (Lin et al., 2025). Although Living Labs have traditionally operated within a Quadruple Helix structure primarily involving academia, industry, government, and civil

society there is a growing movement toward embedding the Quintuple Helix approach, particularly in sustainability-oriented Living Labs and those focused on nature-based solutions (Bhatta et al., 2023). This shift reflects an increasing recognition that environmental concerns should not remain external to innovation systems but instead should be integrated into their core logic and practice. What distinguishes the Quintuple Helix model is its explicit treatment of the natural environment as a central component of the innovation system. This aligns closely with the evolution of Living Labs toward sustainability-oriented approaches, in which ecological processes and environmental benefits are embedded within innovation activities. As such, the model reinforces the argument that Living Labs, especially those inspired by nature-based or eco-social approaches, are particularly well suited to addressing environmental and societal challenges while advancing sustainable development. In this sense, the Quintuple Helix further highlights the need for ecological balance and sustainable innovation (López-De-Alba et al., 2026).

The Quintuple Helix framework conceptualizes the environment as an equal stakeholder rather than merely as a contextual factor or external constraint. Instead, the natural environment is understood as an active participant that both shapes and drives innovation dynamics (Maruccia et al., 2020). Accordingly, Living Labs operating under this model bring together a broad constellation of stakeholders including academia, industry, government, civil society, and environmental actors to collaboratively design, test, and implement innovations in real-life settings (He et al., 2025). In addition, the Quintuple Helix model provides an important basis for the scaling and wider dissemination of Living Labs. It supports the creation and expansion of Living Labs across sectors and regions, often through collaborative networks and funding initiatives that facilitate their development and replication (Riaño-Herrera et al., 2025). At the same time, it offers a valuable framework for aligning Living Lab strategies with sustainable development goals and for strengthening the evaluation of their contributions to sustainability (Maruccia et al., 2020).

This makes the framework especially relevant to Egypt. Current national policies already link innovation with sustainability, competitiveness, and better quality of life. At the same time, climate and development agendas increasingly require planning that brings together both economic and environmental priorities. For this reason, a Living Lab model that focuses only on institutional collaboration, without clearly considering ecological systems, would be incomplete. In contrast, a Living Lab model based on the Quintuple Helix framework is more suitable for Egypt's actual policy context, where innovation needs to support economic development, social inclusion, and environmental resilience at the same time.

Although Quintuple Helix provides a strong conceptual lens, translating it into actionable policy requires a method capable of handling uncertainty, multiple stakeholders, and partially conflicting judgments. This is particularly important when the goal is not merely to describe an existing system, but to identify future policy options for scaling Living Labs. In such settings, empirical evidence may be fragmented, institutional pathways may be evolving, and expert knowledge may be distributed across disciplines and sectors. The Fuzzy Delphi Method offers a suitable methodological response. Delphi-based approaches are widely used to structure expert judgment, identify priorities, and build consensus in areas where direct evidence is incomplete or where decisions involve complex future-oriented choices (Tuni et al., 2023). The fuzzy extension improves this process by incorporating fuzzy set theory, allowing the method to capture ambiguity, linguistic uncertainty, and gradations of expert opinion more effectively than binary or rigid consensus techniques. For the present study, this makes the Fuzzy Delphi Method especially appropriate for evaluating and prioritizing policy alternatives related to governance, institutionalization, stakeholder engagement, financing, and sustainability (Bui et al., 2019).

1.3. Research Gap and Aim of the Study

In the Egyptian case, this situation poses a central question for policy: how can Living Labs transcend the short-termism of pilot projects to become a sustained dimension of national innovation governance? An adequate response to this question involves more than simply supporting co-creation as an ideal; it requires an operational

concept that can effectively govern the alignment of stakeholders, inter-ministerial policy coordination, financial sustainability, and legitimacy and continuity. While Living Labs are generally described as collaboration spaces involving multiple actors, the analytical and governance foundations for scaling up Living Labs are often not sufficiently defined, particularly in the face of environmental stressors and complex multi-level governance systems. This points to the value of a more comprehensive, system-oriented approach (Von Wirth et al., 2018)

While the scope of the Living Lab research has been broadened considerably, much of the research remains focused on place-based applications, project-level experimentation, and/or co-creation logics. In turn, there has been less attention paid to the direct question of how Living Labs can be scaled as a form of sustainable governance, especially for new and developing innovative systems that require consideration of sustainability from the outset (Criado et al., 2020). At the same time, the Quintuple Helix model has emerged as a prominent framework for innovation and sustainability studies, though it has yet to be adopted as a scaling framework for Living Labs in the context of Egyptian governance. In turn, there exists a discernible space for research that brings together theoretical, governance, and anticipatory future policy analysis traditions. To address this gap, this paper advances a Quintuple Helix informed framework to guide the scaling of Living Labs in Egypt and evaluates future policy options using the Fuzzy Delphi Method. The study aims to strengthen a systemic pathway for institutional diffusion, coordinated policymaking, and sustained societal impact. In doing so, it positions the Quintuple Helix within Egypt's current innovation and development agenda while demonstrating how Delphi-based foresight can structure expert judgment and prioritize policy pathways under uncertainty. Ultimately, the paper offers strategic future policy directions for policymakers, universities, industry, civil society, and local communities seeking to embed Living Labs as a stable, scalable instrument within Egypt's evolving innovation ecosystem.

2. Living Lab Activity in Egypt: Emerging Practices and Institutional Applications

Living lab activity in Egypt is still developing and currently appears mainly through university-led sustainability initiatives, applied urban experimentation, and community-oriented innovation pilots, rather than through an established nationwide living lab system. In the Egyptian context, living labs generally function as real-world experimental environments in which universities, researchers, public institutions, and local communities collaboratively design, test, and refine solutions within their actual settings. Recent academic work has identified the living lab approach as a valuable governance and innovation framework for strengthening university–society linkages through civic participation and multi-helix collaboration (Rageh, 2024).

A large share of these initiatives is based on higher education institutions. At The American University in Cairo, the campus has served as a “Living Learning Laboratory” for sustainability-focused applied research, especially in areas such as environmental performance, green campus operations, and student engagement. The university's sustainability infrastructure and research centers have also functioned as practical settings for experimentation and for generating wider community impact in Egypt (AUC, 2014). In architectural and environmental design education, the British University in Egypt provides another clear example. Its work describes living labs as hands-on learning environments where green building practices, climate-responsive design, and post-occupancy evaluation can be tested and refined. Using real or near-real built environments to assess low-energy construction techniques and user experience, such initiatives illustrate core living lab principles, most notably co-creation and context-sensitive experimentation (Dabaieh et al., 2018).

In agriculture, the El-Boghdady Living Lab in Luxor illustrates a practical model of participatory agricultural innovation in Egypt. This initiative brought together farmers, representatives from the University of Aswan, regional governmental bodies, and non-governmental organizations, demonstrating the multi-actor collaboration that defines the living lab model. The discussions addressed two important local value chains: cereals for household consumption and sugarcane for public supply. While field visits revealed key constraints, including

water scarcity, soil salinity, and low profitability. In response, participants identified agroecological practices such as crop rotation, soil-moisture conservation, and on-farm water storage. This case highlights the potential of living labs to foster knowledge exchange, strengthen farmer participation, and co-produce locally relevant sustainability solutions in rural Egypt (NATAE, 2025). Similarly, the Egypt Living Lab established within the SUS-SOIL project, known as the Sekem Living Lab, provides a relevant example centered on regenerative agriculture and sustainable soil management. It serves as a collaborative platform for testing soil restoration practices and encouraging stakeholder interaction around local agricultural challenges. In this way, it shows how living labs in Egypt can enable experimentation, facilitate knowledge sharing, and support the co-creation of more sustainable land-use practices within Mediterranean agricultural systems (Sekem, 2025).

Another notable example is the SEEDS Living Lab, launched in Cairo in 2024, which focuses on improving the resilience of Egypt's grain supply chain. The initiative convened actors from government, academia, research institutions, and the private sector within a collaborative framework aimed at addressing food security challenges, including reliance on imports, post-harvest losses, and exposure to external market disruptions. This case demonstrates how living labs can promote cross-sector coordination and support the joint development of context-sensitive strategies for more resilient agri-food systems in Egypt (SEEDS Project, 2025). Living lab activities in Egypt are still at an early stage, yet existing examples show clear potential. Current initiatives in universities, design education, and agriculture demonstrate that living labs can support co-creation, practical experimentation, and stakeholder collaboration in addressing local sustainability challenges. With stronger institutional and policy support, this approach could become a more established component of Egypt's innovation landscape.

3. Methodology

3.1 Research Design

This study employed a three-phase research design to identify future policy options for scaling Living Labs in Egypt, with the policy dimensions derived from the Quintuple Helix framework. In the first phase, a structured literature review was undertaken to identify policy options related to the scaling of Living Labs across the five Quintuple Helix dimensions: Government, Industry, Academia, Civil Society, and the Natural Environment. This review considered the institutional, regulatory, financial, social, and environmental conditions influencing Living Lab scaling and resulted in the identification of 40 policy options, with eight policy options assigned to each dimension. These policy options formed the preliminary policy framework for the study. In the second phase, the identified policy options were translated into a Delphi questionnaire and reviewed by two senior experts to improve the wording, relevance, content validity, and completeness of the instrument. Based on their feedback, the questionnaire was revised before wider distribution.

The Delphi questionnaire consisted of three parts: expert profile, the 40 policy options, and optional comments. For each policy option, participants were asked to rate its suitability for Egypt using a five-point Likert scale and to indicate the most appropriate policy instrument for implementation. In the third phase, the revised questionnaire was distributed to 20 purposively selected experts with relevant experience in innovation policy, Living Labs, digital transformation, sustainability, public-sector reform, and community engagement. To reflect the Quintuple Helix framework while accounting for the practical realities of the Egyptian innovation ecosystem, the panel included 20 experts distributed across the five sectors based on current landscape density: academia/research (n=6), government/public sector (n=5), civil society/NGOs (n=4), industry/business (n=3), and environment/sustainability (n=2). Participation was voluntary, and responses were collected confidentially. The survey responses were then analyzed using the Fuzzy Delphi Method (FDM) to determine which policy options achieved sufficient consensus to be retained in the final policy framework, applying the established thresholds for consensus $d \leq 0.2$, expert agreement $\geq 75\%$, and defuzzification $A \geq 0.5$.

3.2 Fuzzy Delphi Procedure and Policy Option Validation

The responses obtained from the 20 experts were analyzed using the Fuzzy Delphi Method (FDM) to assess and refine the proposed policy options across the five dimensions of the Quintuple Helix framework. Consistent with the exploratory and generative objective of the study namely, to construct a comprehensive portfolio of future policy pathways rather than to impose a highly restrictive selection the acceptance criteria were calibrated to allow moderate variation in expert judgment while maintaining analytical rigor. The FDM procedure comprised three main steps. First, expert ratings were transformed into triangular fuzzy numbers (TFNs) to account for the uncertainty and imprecision inherent in subjective evaluations (Santos, 2026). Each of the 40 policy options was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). These ordinal responses were converted into TFNs according to the predefined linguistic scale presented in Table 1.

Table 1. Conversion Scale from Linguistic Variables to Triangular Fuzzy Numbers (TFNs)

Likert Scale Value	Linguistic Term	Triangular Fuzzy Number (n_1, n_2, n_3)
1	Strongly Disagree	(0.00, 0.00, 0.25)
2	Disagree	(0.00, 0.25, 0.50)
3	Neutral	(0.25, 0.50, 0.75)
4	Agree	(0.50, 0.75, 1.00)
5	Strongly Agree	(0.75, 1.00, 1.00)

Note: n_1 = minimum, n_2 = medium, n_3 = maximum (triangular fuzzy number).

Second, the individual TFNs were aggregated across the 20 experts to derive group fuzzy values (m_1, m_2, m_3) for each policy option. These values represent the collective minimum, most plausible, and maximum assessments, respectively. Third, three decision criteria were applied to determine the retention of each policy option: the threshold value (d), the level of expert consensus, and the defuzzification score (A). The threshold value measured the degree of dispersion between individual expert judgments and the group average. In line with the study's generative orientation, the acceptable threshold was set at $d \leq 0.2$, thereby permitting moderate divergence while preserving substantive convergence. Expert consensus was defined as the proportion of experts whose threshold value for a given item did not exceed 0.2, with a minimum consensus level of 75% required for acceptance. The defuzzification score was calculated using the centroid method, expressed as

$$A = \frac{1}{3}(m_1 + m_2 + m_3)$$

A minimum defuzzification value of $A \geq 0.5$ was established to ensure that retained policy options reflected an overall positive orientation among the expert panel (Rahman & Kamauzaman, 2022). Accordingly, a policy option was retained in the final framework only if it satisfied all three criteria: a threshold value of $d \leq 0.2$, expert consensus of at least 75%, and a defuzzification score of $A \geq 0.5$. These parameters were intended to ensure methodological transparency and internal consistency while supporting the identification of a diverse, forward-looking set of policy alternatives suitable for the Egyptian context. In addition to the quantitative assessment, experts provided open-ended responses identifying the most appropriate policy instrument for implementing each option. These qualitative responses were analyzed separately using content analysis and were not incorporated into the fuzzy computations. For each retained policy option, the most frequently suggested instrument was identified as the preferred implementation mechanism. Through this integrated approach, the Fuzzy Delphi Method served not only as a validation tool but also as a structured mechanism for identifying practically relevant and implementable policy pathways

4. Results and Discussion

4.1 Respondent Characteristics

The Delphi survey was conducted using a digital instrument distributed to 20 experts to assess and prioritize future policies for scaling up Living Labs in Egypt, following the Quintuple Helix approach. To ensure a comprehensive representation of the innovation ecosystem, the expert panel was strategically drawn from the five dimensions of stakeholder involvement, with a distribution reflecting the current density of the Egyptian innovation landscape: Academia/Research (n=6), Government/Public Sector (n=5), Civil Society/NGOs (n=4), Industry/Business (n=3), and Environment/Sustainability (n=2). With respect to professional experience, the panel demonstrated a high level of seniority: 13 experts possessed more than 15 years of experience in their respective fields, while 7 experts reported between 6 and 15 years of experience. The experts' self-reported areas of expertise covered a broad spectrum of the innovation landscape, including innovation policy (n=15), Living Labs (n=14), digital transformation (n=11), strategic management (n=8), citizen engagement (n=12), and sustainability/climate policy (n=9). All participants met strict eligibility criteria, requiring direct involvement in policymaking, innovation systems, or large-scale implementation within Egypt or comparable emerging markets. The survey instrument contained an initial pool of 40 policy options, structured equally across the five Quintuple Helix dimensions Government (GOV), Industry (IND), Academia (ACA), Civil Society (CIV), and Environment (ENV) with eight policy statements per dimension. Each policy statement was assigned a unique code (e.g., GOV-P1 to GOV-P8) to facilitate systematic screening, retention decisions, and comparative ranking across dimensions. By utilizing a diverse but targeted expert panel, the study ensured that the resulting policy model is grounded in both cross-sectoral consensus and specialized practical knowledge.

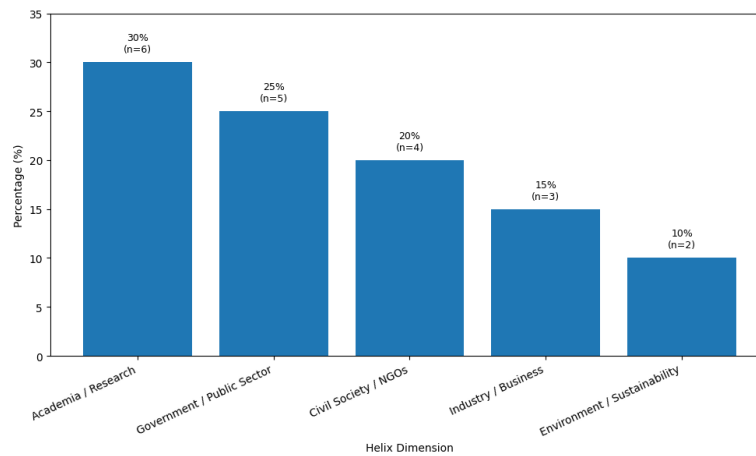


Figure 1. Distribution of Delphi experts

4.2 Fuzzy Delphi Screening Outcomes

The Fuzzy Delphi screening stage was conducted to evaluate the initial set of 40 policy options and identify those that demonstrated sufficient expert convergence for inclusion in the final policy framework. Based on the updated results from the 20-expert panel, 34 policy options were retained and 6 were excluded, resulting in an overall acceptance rate of 85.0% and a rejection rate of 15.0%. This indicates a high overall level of expert convergence, with more than four out of every five proposed policy options satisfying the predefined thresholds for retention. At the level of the five Quintuple Helix dimensions, the distribution of retained items shows a differentiated but still broadly positive pattern. The Academia/Research (ACA) and Civil Society/NGOs (CIV) dimensions emerged as the strongest-performing categories, each achieving a 100% acceptance rate with 8 out of 8 policy options

retained. The Government (GOV), Industry (IND), and Natural Environment (ENV) dimensions each followed with a 75.0% acceptance rate (6 of 8 items retained)

These results indicate generally strong expert agreement across all dimensions. The highest level of convergence was observed in the Academia and Civil Society dimensions, where all policy options were retained. By contrast, the Government, Industry, and Environment dimensions each retained six of the eight proposed policies (75%). Although these dimensions recorded comparatively lower retention rates, the acceptance of three-quarters of the proposed items still reflects substantial expert agreement. The 25% difference between the highest and lowest retention levels remains analytically relevant, as it indicates that convergence was not entirely uniform across stakeholder domains. As illustrated in Figure 2, the distribution of accepted and rejected policy options across the five dimensions confirms both the overall strength of consensus and the moderate variation in support among the stakeholder categories.

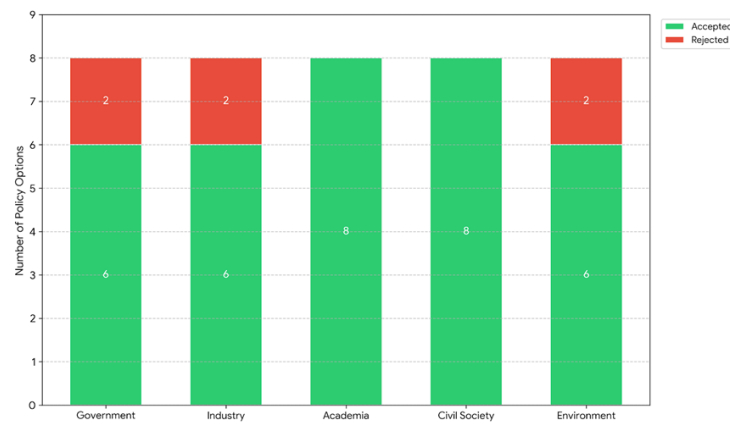


Figure 2. Distribution of Accepted and Rejected Policy Options Across Quintuple Helix Dimensions

4.3 Comparative Results Across Quintuple Helix Dimensions

4.3.1 Government/Public Sector dimension (GOV)

The Government/Public Sector dimension recorded a robust level of convergence in the updated Fuzzy Delphi analysis, with 6 of the 8 proposed policy options retained and 2 excluded, producing an acceptance rate of 75.0% and a rejection rate of 25.0%. In proportional terms, the 6 retained government policies account for 17.6% of the total 34 policies accepted across the entire Quintuple Helix framework. While this indicates a slightly more selective screening compared to the Academia and Civil Society dimensions, the results confirm a strong expert consensus that centralized state coordination and regulatory modernization are the primary enabling conditions for transitioning from pilot-scale experiments to national-scale innovation systems in Egypt. Figure 3 illustrates the average suitability scores for this dimension, highlighting the specific prioritization of the proposed measures.

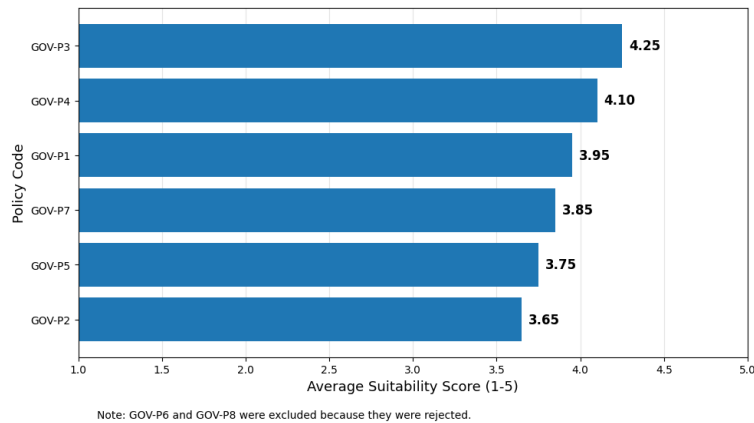


Figure 3. Average Suitability Ratings for Government/Public Sector Policies

Source: Delphi Survey

Within this dimension, the highest-ranked policy option was the establishment of a multi-year Living Lab scale-up fund (GOV-P3), which secured support from 18 of the 20 experts (90.0%) and achieved the highest defuzzification score in the dimension ($A = 0.85$). This was followed closely by the proposal for regulatory sandboxes for priority sectors (GOV-P4), which received endorsement from 17 experts (85.0%) with a suitability score of 4.10. These scores reflect a clear shift in priority toward "de-risking" the scaling process through both direct financial support and "regulatory agility." The high scores for these measures suggest that experts view the government's role not merely as a regulator, but as an active risk-sharer that provides the necessary infrastructure for startups and researchers to test urban solutions without the immediate burden of standard bureaucratic barriers. A second cluster of retained items emphasizes the necessity of formal institutional architecture and market-creation mechanisms. The development of a National Living Lab policy framework (GOV-P1) and standardized legal templates (GOV-P7) both achieved an 80.0% consensus level, with suitability scores of 3.95 and 3.85, respectively. Furthermore, the inclusion of public procurement pathways (GOV-P5) and a national registry/accreditation system (GOV-P2) both supported by 75.0% of the panel emphasizes a strategic intent to link Living Lab results to state purchasing power. Across the six retained government items, suitability ratings ranged from 3.65 to 4.25 on the five-point Likert scale, with an average suitability score of 3.91. This distribution suggests that the expert panel views these measures as an interdependent "governance package" where accreditation (GOV-P2) and standard MoUs (GOV-P7) provide the trust-base required to activate the more impactful scale-up funds and procurement routes.

Two policies were excluded in this dimension: the cross-ministerial coordination unit (GOV-P6) and mandatory monitoring and evaluation (GOV-P8). These items failed to meet the required 75.0% consensus threshold, receiving support from only 65.0% and 60.0% of the experts, respectively. The qualitative feedback associated with these rejections suggests a concern over "administrative inflation"; experts indicated that creating new specialized units or adding mandatory reporting layers might exacerbate existing bureaucratic bottlenecks in Egypt's public sector. Consequently, the consensus focused on streamlining existing processes rather than adding new ones. The Government/Public Sector results indicate that the most actionable pathway for scaling is one anchored in financial de-risking, regulatory sandboxes, and procurement-based uptake, rather than the creation of new administrative bodies (see Table 2).

Table 2. Fuzzy Delphi results for Government/Public Sector dimension (GOV)

Code	Policy option	Consensus (of 20)	Defuzzified score (A)	Supporting reference	Decision	Most-cited instrument
GOV-P3	Launch a multi-year Living Lab scale-up fund dedicated to replication and diffusion of proven pilots.	18/20 (90%)	0.85	(Von Wirth et al., 2018)	Accept	Dedicated budget line; Competitive grants with milestone payments.

Code	Policy option	Consensus (of 20)	Defuzzified score (A)	Supporting reference	Decision	Most-cited instrument
GOV-P4	Introduce regulatory sandboxes/experimental permits for priority sectors to enable safe, legally supported real-world testing.	17/20 (85%)	0.82	(Ranchordás, 2021)	Accept	Sandbox permits; Time-bound approvals with regulatory oversight.
GOV-P1	Establish a national Living Lab policy framework defining roles, governance, and minimum operating requirements.	16/20 (80%)	0.79	(Westerlund et al., 2018)	Accept	Ministerial decree; National operating standards and compliance guidelines.
GOV-P7	Develop flexible legal guidance and model templates (MoU, liability, IP/data clauses) for partnerships.	16/20 (80%)	0.77	(Voorwinden et al., 2023)	Accept	Standard legal templates; Voluntary guidance for inter-sectoral MoUs.
GOV-P5	Institutionalize an innovation procurement pathway (PPI) using Living Lab evidence for adoption decisions.	15/20 (75%)	0.75	(Van Winden & Carvalho, 2019)	Accept	Procurement reform; PPI rules integrating LL evidence into tenders.
GOV-P2	Establish a national Living Lab registry/accreditation framework with periodic review and transparency.	15/20 (75%)	0.73	(Toso et al., 2023)	Accept	National registry; Accreditation criteria and periodic digital audits.
GOV-P6	Establish a cross-ministerial coordination unit to streamline approvals and remove scaling bottlenecks.	13/20 (65%)	0.68	(Christensen et al., 2007)	Reject	Concerns over administrative inflation and new bureaucratic layers.
GOV-P8	Require mandatory monitoring & evaluation (M&E) and public reporting for publicly funded Living Labs.	12/20 (60%)	0.65	(Dekker et al., 2021)	Reject	Perceived as high administrative burden for early-stage pilots.

Source: Delphi Survey

4.3.2 Industry/Business Dimension (IND)

The Industry/Business dimension demonstrated a solid level of convergence in the updated Fuzzy Delphi analysis, with 6 of the 8 proposed policy options retained and 2 excluded, resulting in an acceptance rate of 75.0% and a rejection rate of 25.0%. In proportional terms, the six retained industry policies represent 17.6% of the total 34 policy options accepted across the entire Quintuple Helix framework. Although this places the industry dimension slightly below the Academia and Civil Society categories in terms of total retention, it indicates substantial expert support for business-oriented measures as a vital engine for the scaling process. The overall pattern suggests that experts view private-sector engagement as essential for sustainability, but they favor instruments that reduce immediate operational barriers and generate clearer near-term commercialization pathways over complex fiscal reforms. Within this dimension, the strongest support was recorded for SME Living Lab vouchers (IND-P2), which received agreement from 18 of the 20 experts (90.0%) and achieved the highest suitability score in the category (4.20). This was followed by industry-led challenge calls and prizes (IND-P6), supported by 17 experts (85.0%) with a suitability score of 3.95 (0.79), and co-investment matching grants (IND-P1), supported by 16 experts (80.0%) with a score of 3.80 (0.76). This concentration of support indicates that experts place the greatest emphasis on measures that lower entry costs for firms, share scaling risks, and provide competitive incentives for market-ready solutions. By prioritizing vouchers and grants, the panel signals that direct, accessible liquidity is more critical for the Egyptian private sector than indirect supports.

A second group of retained policy options reflects a focus on institutional ease and market readiness. Standard model contracts for IP and data sharing (IND-P4), tax incentives for LL-validated R&D (IND-P3), and commercialization mentorship hubs (IND-P7) each received support from 15 of the 20 experts, corresponding to 75.0% consensus. Their suitability scores ranged from 3.55 to 3.75 (0.71 to 0.75). Substantively, this cluster points to a preference for mechanisms that reduce "negotiation friction" and prepare homegrown innovations for

the rigors of the marketplace. Figure 4 visualizes these ratings, highlighting the clear preference for SME-centric and competition-based instruments.

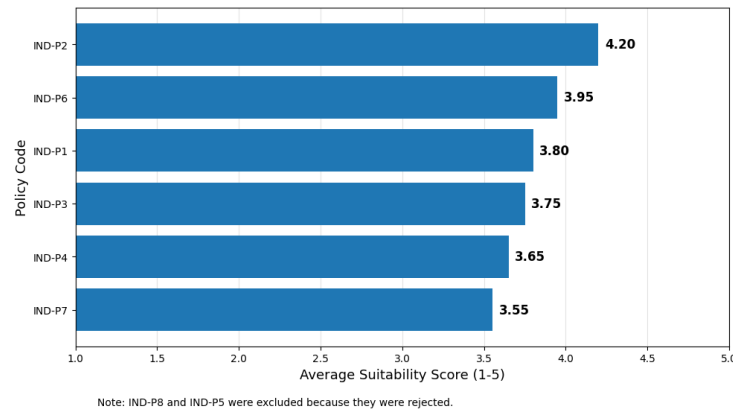


Figure 4. Average Suitability Ratings for Industry/Business Policies

Source: Delphi Survey

The two rejected policy options failed to meet the required 75% consensus threshold defined in the Fuzzy Delphi screening procedure, indicating that expert agreement was insufficient for their inclusion in the final policy framework. The proposal for sector-focused Living Lab consortia (IND-P5) and blended finance/PPP mechanisms (IND-P8) failed to meet the 75.0% consensus threshold, receiving support from only 60.0% and 65.0% of the experts, respectively. The qualitative feedback suggests that while experts recognize the theoretical value of these complex financial and organizational models, they are less confident in their governance design or feasibility in the current Egyptian context. Specifically, PPPs were noted as being potentially too "heavy" for the agile nature of Living Lab pilots. Overall, the Industry/Business results indicate that consensus is strongest around near-term, operationally feasible measures particularly vouchers and challenge prizes while more complex structural mechanisms require further refinement (see Table 3).

Table 3. Fuzzy Delphi Results for Industry/Business Dimension (IND)

Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
IND-P2	Provide SME Living Lab vouchers for prototyping, testing, and certification support.	18/20 (90%)	0.84	(Sala et al., 2015)	Accept	Voucher scheme redeemable for LL services (testing, certification).
IND-P6	Launch challenge calls/prizes aligned with national priorities and buyer commitments.	17/20 (85%)	0.79	(Georghiou et al., 2013)	Accept	Innovation prizes; Competitions with guaranteed pilot contracts.
IND-P1	Implement co-investment/matching grants for firms scaling LL-validated solutions.	16/20 (80%)	0.76	(Owen & Mason, 2016)	Accept	Matching grants; Co-financing tied to specific scale milestones.
IND-P3	Introduce tax incentives or fee reductions for R&D and pilot-to-scale investments.	15/20 (75%)	0.75	(Ballon et al., 2018)	Accept	R&D tax credits; Reduced licensing fees for LL-validated startups.
IND-P4	Provide standard model contracts for IP, data, and liability to reduce negotiation friction.	15/20 (75%)	0.73	(Gilbert et al., 2025)	Accept	Model contract pack with default IP and liability clauses.
IND-P7	Create a commercialization and market-access program (investor matchmaking, export readiness).	15/20 (75%)	0.71	(Selviaridis & Spring, 2024)	Accept	Matchmaking platforms; Export readiness training and roadshows.

Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
IND-P8	Support blended finance/PPP mechanisms for solutions with high public value but slow payback.	13/20 (65%)	0.67	(Bolton et al., 2020)	Reject	Perceived as too complex for current implementation frameworks.
IND-P5	Establish sector-focused Living Lab consortia/clusters to support scaling partnerships.	12/20 (60%)	0.65	(McPhee et al., 2021)	Reject	Concerns over silo creation and organizational overhead.

Source: Delphi Survey

4.3.3 Academia/Research dimension (ACA)

The Academia/Research dimension recorded the highest level of convergence in the updated Fuzzy Delphi analysis, with 8 of the 8 proposed policy options retained, resulting in a perfect acceptance rate of 100.0%. In the updated sample of 20 experts, this dimension emerged as the undisputed leader in institutional readiness. Proportionally, these eight academic policies represent 23.5% of the total 34 policies accepted across the Quintuple Helix. This pattern suggests a unanimous expert agreement that scaling Living Labs in Egypt is fundamentally dependent on methodological rigor, institutional learning, and the formalization of research-based implementation systems. Within this dimension, the highest-ranked policy option was the market-linked collaborative research fund (ACA-P6), which achieved a suitability score of 4.35. This was followed closely by the "impact" metrics for researcher promotion (ACA-P2), which secured a score of 4.15 (0.83). These results indicate a significant shift in the Egyptian academic landscape: experts are calling for a move away from purely theoretical publications toward "engaged scholarship." By prioritizing impact metrics and market-linked funding, the panel suggests that universities should be incentivized to act as the "R&D departments" for urban innovation, providing the evidence base required for scaling (see Figure 5).

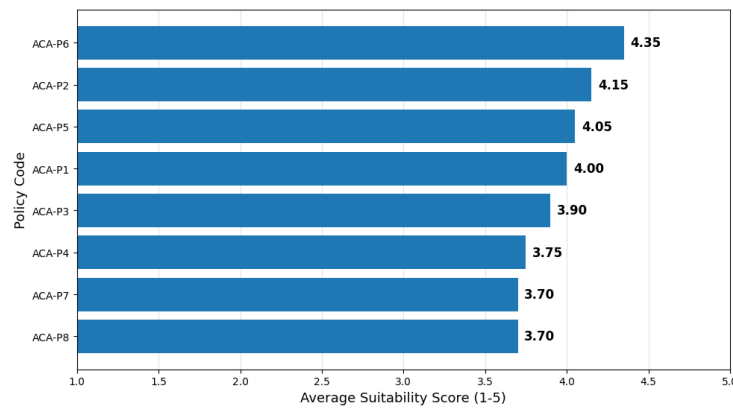


Figure 5. Average Suitability Ratings for Academia/Research Dimension

Source: Delphi Survey

A second cluster of retained policy options further reinforces this pattern. Knowledge translation units (ACA-P4), joint industry–academia applied research programs (ACA-P5), embedded researcher and student placements (ACA-P7), and specialized ethics and data governance boards (ACA-P8) each received support from 15 of the 20 experts, corresponding to 75.0% consensus. Their suitability scores ranged from 3.70 to 3.75, indicating stable and internally consistent support across this second tier of academic measures. Across the eight retained academic items, the total number of positive judgments reached 131 out of a possible 160, producing an aggregate endorsement rate of 81.9%. At the same time, the retained items recorded suitability scores ranging from 3.70 to 4.35, with an average score of 4.11. The relatively narrow spread in both consensus and defuzzified values suggests that support was not concentrated in a single item but rather distributed across a coherent package of academic policies focused on evaluation, training, infrastructure, translation, and responsible governance of

experimentation. Overall, the Academia/Research results indicate that expert consensus is strongest around three numerically clear priorities: market-linked research funding (ACA-P6), incentive reform for engaged scholarship (ACA-P2), and institutional policies for experimental testing (ACA-P5). Collectively, these results position academia not merely as a supporting actor, but as a central institutional driver of methodological coherence, evidence generation, and learning-based scaling in the Egyptian Living Lab ecosystem (see Table 4).

Table 4. Fuzzy Delphi results for Academia/Research dimension (ACA)

Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
ACA-P6	Create market-linked research funds aligned with Living Lab scaling priorities.	19/20 (95%)	0.87	(Van Geenhuizen, 2016)	Accept	Co-funded calls: industry cost-share - applied deliverables
ACA-P2	Reform university incentives to recognize engaged scholarship and real-world impact.	18/20 (90%)	0.83	(Lhoest et al., 2024)	Accept	Promotion/tenure reform: impact-based KPIs for faculty
ACA-P5	Establish university policies for experimental testing and real-world experimentation.	17/20 (85%)	0.81	(Van Engelenhoven et al., 2023)	Accept	Institutional bylaws allowing for campus-based testing
ACA-P1	Develop a national Living Lab evaluation protocol (KPIs, impact measurement) for Egypt.	16/20 (80%)	0.80	(Van Geenhuizen, 2018)	Accept	National evaluation standard: KPIs - replication criteria - templates
ACA-P3	Fund shared research infrastructure (data platforms, repositories, evidence toolkits).	16/20 (80%)	0.78	(Ruijter, 2021)	Accept	Infrastructure grants for platforms, repositories, consent tools
ACA-P4	Establish knowledge translation units to convert LL findings into policy briefs.	15/20 (75%)	0.75	(Evans & Scarbrough, 2014)	Accept	University unit mandate - staffing - policy brief outputs
ACA-P7	Support embedded researcher/student placements inside Living Labs.	15/20 (75%)	0.74	(Van Engelenhoven et al., 2023)	Accept	Funded placements/internships linked to LL projects and evaluation
ACA-P8	Establish specialized ethics and data governance boards for real-world testing.	15/20 (75%)	0.74	(Racine et al., 2023)	Accept	Ethics/data board with fast review timeline - audit role

Source: Delphi Survey

4.3.4 Civil Society/NGOs dimension (CIV)

The Civil Society/NGOs dimension demonstrated absolute convergence in the updated Fuzzy Delphi analysis, with 8 of the 8 proposed policy options retained, resulting in a perfect acceptance rate of 100.0%. In the updated sample of 20 experts, this dimension joined Academia as a top-performing category, reflecting a powerful consensus that social legitimacy is not a "secondary" concern but a fundamental prerequisite for scaling innovation in the Egyptian context. Proportionally, these eight policies represent 23.5% of the total 34 validated measures, indicating that experts view human-centric governance as a pillar of the overall framework. Within this dimension, the highest-ranked policy option was the requirement for mandatory ethics, informed consent, and grievance mechanisms (CIV-P3), which achieved a suitability score of 4.25. This was followed closely by the establishment of digital engagement and co-creation platforms (CIV-P1), securing a score of 4.15 (0.83). These results underscore a shift toward "procedural trust"; experts argue that for Living Labs to move from isolated pilots to urban-scale systems, there must be a rigorous, legally backed protection framework for participants. By prioritizing digital platforms alongside ethics, the panel suggests that scaling requires both high-tech accessibility and high-touch transparency (see Figure 6).

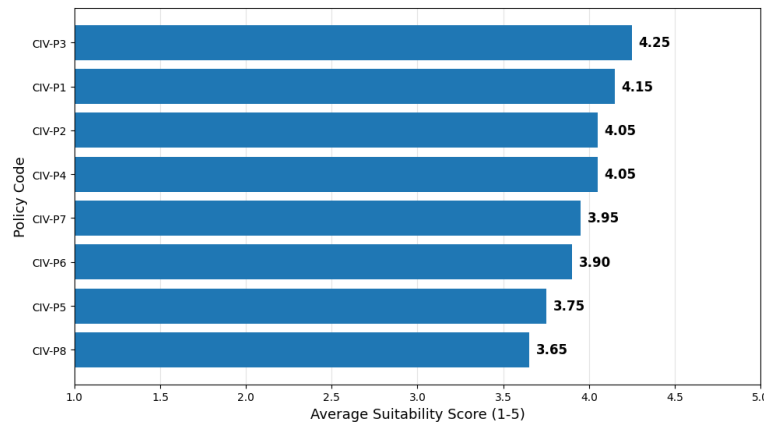


Figure 6. Average Suitability Ratings for Civil Society/ NGOs Dimension
Source: Delphi Survey

A second cluster of retained items reinforces the operational role of inclusive participation. The funding of community intermediaries and NGOs (CIV-P2) and the implementation of open data/transparency dashboards (CIV-P7) both received support from 17 of the 20 experts, corresponding to 85.0% consensus. Their suitability scores ranged from 3.95 to 4.05, indicating stable support for the role of "trusted brokers" who can bridge the gap between technical labs and local neighborhoods. Experts highlighted that in the Egyptian context, NGOs often possess the local social capital that government or industry actors lack, making them essential for the long-term sustainability of real-world trials. Furthermore, the retention of inclusion-by-design toolkits (CIV-P6) and community-led innovation grants (CIV-P4) reflects a commitment to "Data Democracy." Across the eight retained civil society items, the total number of positive judgments reached 132 out of a possible 160, producing an aggregate endorsement rate of 82.5%. Suitability scores ranged from 3.65 to 4.25, with an average of 4.08. This narrow spread suggests that the expert panel views these measures not as a menu of options, but as a coherent "Social License Package." Collectively, these findings suggest that the most feasible pathway for scaling Living Labs in Egypt lies in strengthening trust and procedural legitimacy through standardized inclusion and transparent communication (see Table 5).

Table 5. Fuzzy Delphi Results for Civil Society/ NGOs Dimension (CIV)

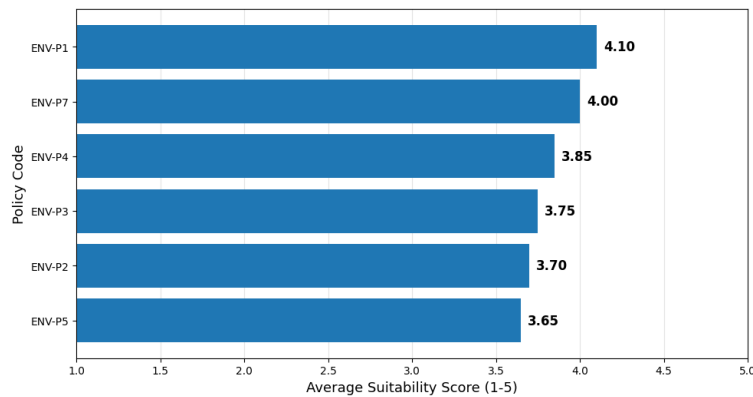
Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
CIV-P3	Require ethics, informed consent, transparency, and grievance mechanisms for all trials.	18/20 (90%)	0.85	(Mollen, 2024)	Accept	Binding ethics protocol; consent forms; grievance channel
CIV-P1	Adopt digital engagement and co-creation platforms to enable hybrid (online/offline) participation.	18/20 (90%)	0.83	(Mačiulienė & Skaržauskienė, 2020)	Accept	National digital portal; co-creation toolkits; reporting dashboards
CIV-P2	Fund community intermediaries (NGOs) to recruit participants and sustain engagement.	17/20 (85%)	0.81	(Hernberg & Hyysalo, 2024)	Accept	NGO grants/contracts for facilitation and trust-building
CIV-P4	Implement community-led innovation grants for user-driven solutions and micro-pilots.	17/20 (85%)	0.81	(Sudoj et al., 2021)	Accept	Micro-grant scheme; participatory budgeting for community labs
CIV-P7	Launch open data/transparency dashboards to share LL results and environmental impacts.	16/20 (80%)	0.79	(Van Geenhuizen, 2018)	Accept	Public dashboards; open-results publishing; media partnerships
CIV-P6	Implement inclusion-by-design toolkits (accessibility, low-literacy methods) to broaden participation.	16/20 (80%)	0.78	(Loignon et al., 2021)	Accept	Standardized toolkits; training for inclusive co-creation methods

Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
CIV-P5	Integrate citizen science approaches to support data collection and policy evidence.	15/20 (75%)	0.75	(Heigl et al., 2020)	Accept	Guidelines and pilot programs for citizen science data quality
CIV-P8	Adopt a Citizen Participation Charter specifying minimum requirements for representation.	15/20 (75%)	0.73	(Haug & Mergel, 2021)	Accept	Official charter; minimum inclusion and feedback standards

Source: Delphi Survey

4.3.5 Environment/Sustainability dimension (ENV)

The Environment/Sustainability dimension demonstrated substantial convergence in the updated Fuzzy Delphi analysis, with 6 of the 8 proposed policy options retained and 2 excluded, resulting in an acceptance rate of 75.0% and a rejection rate of 25.0%. In proportional terms, the six retained environmental policies represent 17.6% of the total 34 policy options accepted across the Quintuple Helix. While this aligns the ENV dimension with the Government and Industry categories, it emphasizes a clear expert consensus that sustainability must be an "embedded" feature of the scaling process rather than an afterthought. The pattern suggest that experts favor measures integrated through practical rules and planning requirements over highly technical monitoring systems. Within this dimension, the strongest support was recorded for defining Green Living Lab criteria (ENV-P1), which received endorsement from 17 of the 20 experts (85.0%) and achieved the highest suitability score in the category (4.10). This was followed by the inclusion of green public procurement criteria (ENV-P7), supported by 16 experts (80.0%) with a suitability score of 4.00 (0.80). These results reflect a strategic preference for market-pull mechanisms; by linking Living Lab validation to "Green Procurement," experts believe Egypt can create a powerful incentive for firms to prioritize sustainable urban solutions (see Figure 7).



Note: ENV-P6 and ENV-P8 were excluded because they were rejected.

Figure 7. Average Suitability Ratings for Environment/Sustainability Dimension

Source: Delphi Survey

A second tier of four retained policies reflects a focus on resilience and thematic prioritization. Nature-based solutions (ENV-P4), Circular economy calls (ENV-P3), Environmental gating (ENV-P2), and Climate risk assessments (ENV-P5) each received support from 15 of the 20 experts (75.0%), with suitability scores ranging from 3.65 to 3.85. Substantively, this indicates that experts support environmental mainstreaming when it is built into existing approval and funding processes. For example, making scale-up funding conditional on verified performance (ENV-P2) is seen as a more practical lever than mandating separate, costly technical audits. The two excluded policy options help clarify the boundaries of current technical readiness in Egypt. The proposals for integrated environmental monitoring systems (ENV-P6) and mandatory Life-Cycle Assessments (LCA) or carbon accounting (ENV-P8) failed to meet the 75.0% consensus threshold, receiving support from only 65.0% and 60.0% of the experts, respectively. Qualitative feedback indicated that while these measures are strategically valuable, the capacity and cost burden for LCA and real-time data maintenance are currently too high for most

Egyptian startups and municipal labs. Overall, the ENV results suggest that the most feasible environmental pathway for scaling lies in operational sustainability rules and incentive alignment, while more technical accounting systems remain a long-term goal (see Table 6).

Table 6. Fuzzy Delphi Results for Environment/Sustainability Dimension (ENV)

Code	Policy Option	Consensus (of 20)	Defuzzified Score (A)	Supporting Reference	Decision	Most-Cited Instrument
ENV-P1	Define Green Living Lab criteria (baseline targets for energy, water, waste) for scaling.	17/20 (85%)	0.82	(Cuomo, 2022)	Accept	Green standard/checklist: baseline and measurable targets
ENV-P7	Introduce green public procurement criteria favoring LL-validated sustainable solutions.	16/20 (80%)	0.80	(Braulio-Gonzalo & Bovea, 2019)	Accept	Procurement rules adding sustainability and LL validation
ENV-P4	Prioritize Living Labs testing nature-based solutions (urban cooling, flood control) via grants.	15/20 (75%)	0.77	(Ascione et al., 2021)	Accept	Thematic grant calls for nature-based solution pilots
ENV-P3	Prioritize Living Labs testing circular economy solutions (reuse, recycling) via grants.	15/20 (75%)	0.75	(Engez et al., 2021)	Accept	Thematic grant calls prioritizing circularity outcomes
ENV-P2	Apply environmental gating, making scale-up funding conditional on verified performance.	15/20 (75%)	0.74	(De Miranda Ribeiro & Kruglianskas, 2012)	Accept	Funding conditionality tied to verified green indicators
ENV-P5	Require climate risk/resilience assessment in scale-up proposals to mainstream adaptation.	15/20 (75%)	0.73	(Zebisch et al., 2022)	Accept	Planning requirement: resilience section in approval stage
ENV-P6	Integrate Living Labs with environmental monitoring/open data systems for governance.	13/20 (65%)	0.68	(Ruijter & Meijer, 2019)	Reject	Data governance concerns: ownership and maintenance capacity
ENV-P8	Require life-cycle assessment (LCA) / carbon accounting for solutions transitioning to scale.	12/20 (60%)	0.65	(Finkbeiner, 2014)	Reject	High capacity and cost burden for carbon accounting audits

Source: Delphi Survey

4.4 Empirical Validation of the Quintuple Helix-Based Policy Model

The final stage of the analysis provides strong empirical support for the proposed Quintuple Helix-based policy model for scaling Living Labs in Egypt. From the initial pool of 40 policy options, 34 were retained and 6 were excluded following the updated Fuzzy Delphi screening process, producing an overall validation rate of 85.0% and a rejection rate of 15.0%. In practical terms, this means that nearly 9 out of every 10 proposed policy measures satisfied the rigorous validation thresholds. Given the equal structure across five dimensions, the retention of 34 items indicates that the model remained substantively intact, with only a limited degree of refinement. This high level of retention suggests that the overall architecture was regarded by the expert panel as highly relevant and broadly applicable to the Egyptian context. The internal balance of the model is reflected in the dimensional distribution of accepted policies. The Academia/Research and Civil Society dimensions demonstrated the highest level of expert alignment, each retaining 100.0% of their proposed policies (8 of 8). The Government, Industry, and Environment dimensions each retained 75.0% of their options (6 of 8). Consequently, the difference between the highest and lowest dimensional acceptance rates was only 25.0 percentage points, indicating a robust spread of agreement across the five helices. In share terms, Academia and Civil Society each contributed 23.5% of the validated portfolio, while the remaining three dimensions contributed 17.6% each. These proportions indicate that no single helix was disproportionately weakened, and the model remains structurally balanced rather than concentrated in one institutional domain.

A detailed numerical reading reinforces the robustness of the model. Across the 34 retained policy options, the aggregate level of positive expert support reached 549 endorsements out of a possible 680 expert-item responses, producing an aggregate endorsement rate of 80.7%. By contrast, the 6 excluded items generated 75 positive endorsements out of 120 possible responses (62.5%). This indicates that rejected items were not viewed as irrelevant but rather fell below the required 75.0% consensus threshold. This indicates that the exclusion process functioned as a mechanism of selective refinement rather than fundamental rejection, filtering out measures perceived as having higher administrative complexity or lower immediate feasibility (see Table 7).

Table 7. Summary of Retained and Rejected Policies by Dimension

Dimension	Policies Proposed	Accepted	Rejected	Acceptance Rate (%)
Academia / Research (ACA)	8	8	0	100.0%
Civil Society / NGOs (CIV)	8	8	0	100.0%
Government / Public Sector (GOV)	8	6	2	75.0%
Industry / Business (IND)	8	6	2	75.0%
Environment / Sustainability (ENV)	8	6	2	75.0%
Total	40	34	6	85.0%

Ultimately, these results confirm that the Quintuple Helix-based policy model is empirically validated as a multidimensional and robust framework. Its strength lies in the high overall validation rate and the balanced retention pattern. The final validated model captures a coherent set of priorities that are both cross-sectoral and practically grounded. The model functions as an integrated policy architecture where institutional coordination, business engagement, academic capacity, social legitimacy, and sustainability requirements are all retained as essential and mutually reinforcing pillars for scaling Living Labs in Egypt.

5. Conclusion

This study addresses a central policy challenge in Egypt's innovation landscape: how Living Labs can move from fragmented, short-term pilot initiatives into a scalable and institutionally embedded instrument of national innovation governance. Anchored in the Quintuple Helix framework, the analysis extends beyond conventional triple-helix accounts by explicitly incorporating civil society and the natural environment as constitutive, interdependent domains shaping innovation processes. In doing so, the study aligns the logic of experimentation and co-creation with the priorities of Egypt Vision 2030, positioning Living Labs as mechanisms not only for technological upgrading and competitiveness, but also for social legitimacy and ecological resilience. Empirically, the policy model was developed and validated using the Fuzzy Delphi Method, yielding strong overall convergence: 34 of 40 proposed policy options were retained, corresponding to an aggregate validation rate of 85.0%. This high retention level indicates that the proposed policy architecture is widely perceived by experts as coherent, contextually relevant, and feasible. Notably, full retention in the Academia/Research and Civil Society/NGO dimensions signals these domains as primary engines of co-creation capacity, institutional learning, and societal trust. By contrast, the comparatively lower retention observed across the Government, Industry, and Environment dimensions (75.0%) suggests that despite substantial support scaling in these domains requires more finely calibrated instruments to address regulatory fragmentation, financial risk aversion, market adoption constraints, and the practical challenges of environmental mainstreaming.

The results reinforce that scaling Living Labs in Egypt is not a purely technical or project-level matter; it is a systemic governance task that depends on coordinated policy interventions across helix domains. Synthesizing the retained options, the study identifies three interlocking pillars for institutionalization. First, governance and standardization are required to provide definitional clarity, differentiate Living Labs from adjacent formats (e.g., incubators and innovation hubs), and establish formal evaluation standards that enable comparability, accountability, and learning across sites. Second, financial and commercial sustainability must shift the model away from ad-hoc grants toward predictable public financing and credible commercialization pathways that reduce uncertainty and incentivize private-sector participation. Third, socio-ecological integration is necessary to

ensure that “user-centricity” is operationalized through inclusive citizen participation while simultaneously accounting for Egypt’s ecological constraints through explicit sustainability requirements embedded in funding, procurement, and ethics frameworks. Conceptually, the paper advances Living Lab scholarship by moving beyond general advocacy for co-creation toward an operational, policy-oriented account of scale-up and institutional embedding. The Quintuple Helix is deployed not only as an explanatory lens, but as a practical structure for designing cross-sectoral policy mixes linking state coordination, academic capability building, industry engagement, social legitimacy, and environmental rules capable of converting localized experimentation into systemic impact.

The study’s limitations are also clear. The findings derive from expert judgement based on a purposive panel (n = 20), and the resulting model constitutes a validated policy framework rather than an assessment of implementation effectiveness. Future research should therefore examine how the retained policy options perform in practice across sectors and governorates, using longitudinal monitoring and comparative implementation analysis to test real-world efficacy under varying institutional and socio-ecological conditions. Nonetheless, the validated set of 34 prioritized policy options provides a robust roadmap for policymakers, universities, firms, civil society organizations, and sustainability stakeholders seeking to position Living Labs as a durable, scalable component of Egypt’s evolving innovation ecosystem one that is technologically progressive, socially inclusive, and environmentally responsive.

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DOES DECENTRALIZATION REDUCE CORRUPTION? EMPIRICAL EVIDENCE FROM ZIMBABWE'S LOCAL AUTHORITIES**Joseph Tinarwo^{1*}, Tawanda Nyikadzino²**^{1*} *Department of Financial Governance, University of South Africa, South Africa*² *Department of Auditing, University of South Africa, South Africa*E-mails: ^{1*} tinarij@unisa.ac.za (Corresponding author); ² tawanyika@gmail.com

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Abstract. Recently, there has been a renewed global effort to combat corruption to achieve the Sustainable Development Goals. Corruption across all tiers of government stifles economic growth, undermines national development, and ultimately threatens socio-economic transformation. Devolution has been widely acknowledged as a contemporary governance system that promotes public participation, strengthens transparency and accountability, and democratizes government systems. This study primarily used a qualitative approach to examine the prospects of devolution in addressing corruption in local authorities in Zimbabwe. To achieve this, the study seeks to answer the following questions: To what extent does the implementation of devolution in Zimbabwe contribute to reducing corruption within local authorities? What are the problems the Zimbabwean government faces in utilizing devolution to combat corruption in local authorities? What anti-corruption strategies can the Zimbabwean government utilize to enhance transparency, accountability, and integrity, thereby mitigating corrupt practices through devolution? Data were primarily collected through a triangulation of documentary searches and in-depth interviews, which allowed for the purposive sampling of key informants, including senior administrative officials and councillors in local authorities, senior central government officials in government ministries and departments, development partners, civil society organizations, and academics. The study established that, if adequately implemented, devolution could help reverse the discretionary abuse of public power and resources by central government elites. Findings also indicate that devolution enhances the efficiency of social service provision by enabling a match between local people's desires and aspirations and the governance of public institutions. This research has significant implications for designing anti-corruption strategies that devolution can offer to mitigate corruption while highlighting the challenges and opportunities associated with its implementation.

Keywords: corruption; devolution; local authorities

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JEL Classifications: H10, H11, H12**Additional disciplines:** public administration**1. Introduction**

A renewed global effort has recently been made to combat corruption, ensuring fiscal prudence, achieving developmental targets, and ultimately realizing socio-economic transformation (UNDP, 2021). Corruption across all tiers of government stifles economic growth, undermines national development, and threatens the realization of several human rights (Moyo, 2021; Nirola et al., 2022; Bojanic, 2023; Zvoushe, 2025).

Devolution has been widely acknowledged as a contemporary governance system that promotes public participation, strengthens transparency and accountability, and democratizes government systems. Recent

scientific evidence has revealed that the implementation of devolution as a system of governance has the potential to reverse the discretionary abuse of public power and resources by central government elites (Ngigi & Busolo, 2019; Choudhury, 2023; Yunan et al., 2023; Jin & Kim, 2024; Yunan, Freyens & Vidyattama, 2025).

It also enhances the efficiency of social service provision by allowing a match between the desires and aspirations of the local people and the governance of public institutions. The internationally recognized Corruption Perception Index (CPI), conducted by Transparency International, ranks Zimbabwe 158 out of 180 countries and scores 21 on a 0 (highly corrupt) to 100 (highly clean) scale in 2024, indicating that corruption is rife in this country, particularly in central and local government authorities (Transparency International, 2025). A range of factors has contributed to corruption in Zimbabwe's local authorities and elsewhere in the world, particularly in Africa. These factors include, but are not limited to, poor governance and its derivatives, such as a lack of transparency and accountability, weak legal and institutional frameworks, a lack of political will, and a failure to adopt a multi-sectoral and multi-stakeholder approach to combating corruption (Tinarwo et al., 2019). The government is currently implementing devolution as enshrined in Section 264 of the Constitution, which could provide a window of opportunity to combat corruption at both national and sub-national levels.

Since its independence, the Zimbabwean government has been grappling with corruption at various levels. The government implemented several institutional and legal anti-corruption reforms. In 2013, a new Constitution was promulgated. The 2013 Constitution embraces devolution as a critical reform strategy for enhancing accountability and transparency, cardinal pillars of good governance. One of the significant objectives of devolution provided in section 264(2b) of the Constitution is "to promote democratic, effective, transparent, accountable and coherent government in Zimbabwe as a whole" (Government of Zimbabwe, 2013). Section 266 further regulates the conduct of provincial and local government employees. It emphasizes political neutrality, which is essential in curbing political and administrative corruption. It is hoped that devolving governing powers and responsibilities to local authorities, which are closer to the people, will enhance local democracy, thereby fostering citizen participation, transparency, responsiveness, efficiency, and downward accountability (Government of Zimbabwe, 2013; Nyikadzino & Vyas-Doorgapersad, 2020). These sound governance principles are indispensable in the fight against corruption at local government levels. Empowered citizens can raise governance questions and hold duty-bearers accountable for their actions. To strengthen accountability, the 2013 Constitution further provides for public administration principles and establishes an anti-corruption institution, similar to the Zimbabwe Anti-Corruption Commission.

However, notwithstanding the adoption of devolution and other complementary anti-corruption reforms, corruption and related corporate governance scandals persist in Zimbabwe's local authorities. As the Anti-Corruption Trust of Southern Africa argues, "corruption and maladministration are undeniably among the greatest challenges affecting the performance of local authorities in Zimbabwe" (Anti-Corruption Trust of Southern Africa, 2021). The Auditor General's Reports on Local Authorities from 2013 to 2019 highlight several corruption cases in urban councils. Corruption in urban councils has reached shocking and alarming levels (Majome, 2019; Midlandsnews, 2021). It has significantly compromised the enjoyment of fundamental human rights, including the rights to water, health, and education, among others.

Against the preceding background, this article critically analyses the prospects of devolution in tackling corruption in Zimbabwe's local authorities. It assesses the opportunities and challenges to curbing corruption through devolution and provides policy recommendations to strengthen the anti-corruption drive in Zimbabwe's local authorities. The article makes a case that the effective implementation of devolution could help in addressing the deleterious effects of corruption in Zimbabwe's local authorities by promoting local-level accountability, increasing transparency in the use of public resources, and promoting the participation of local people in decision-making on matters that affect their lives (Chigwata & de Visser, 2020). In addition, fighting corruption in local authorities promotes a democratic dispensation, supports good governance, and ultimately results in a situation in

which every person's right to access services is realised, as provided in several sections of the country's Constitution (Tinarwo et al., 2019).

Main Research Questions: What are the factors/variables influencing corruption in Zimbabwe's local authorities?

- a) What anti-corruption strategies have been implemented by the local authorities in Zimbabwe?
- b) What are the opportunities and challenges in tackling corruption through devolution in Zimbabwe's local authorities?
- c) What policy measures should be taken or adopted to fight corruption in Zimbabwe's local authorities?

2. Review of Literature

2.1. Devolution and Corruption in Local Governance Contexts

Public sector management reformers have criticized centralized government systems for perpetuating corruption and other administrative inefficiencies for nearly four decades (Siburian, 2024). The administrative inefficiencies inherent in centralized government systems worldwide have prompted the implementation of devolutionary reforms, with an emphasis on reducing central government omnipresence, which is often blamed for entrenching rampant and systemic corruption (Crawford & Hartmann, 2008; Nyikadzino & Vyas-Doorgapersad, 2020). Subsequently, much of Africa's development and governance debate tends to focus on how devolutionary reforms can curb corruption. In many African countries, devolution has become a strategic reform policy for restructuring governmental systems and fighting corruption (Odigbo, 2013; Olowu & Wunsch, 2004). However, before discussing the relationship between devolution and corruption in local governance, it is essential to conceptualize these two. This is crucial, given that in Zimbabwe, devolution is conceptualized differently and sometimes confused with deconcentration and decentralization.

There are many definitions of devolution, but it broadly involves the “transfer of political power and resources from the central government to democratically elected (and largely independent) subnational units” (Kanyinga, 2016). Similarly, decentralization specialists, such as Cheema & Rondinelli (2007), have long maintained that devolution also transfers revenue-raising powers to democratically elected subnational governments, empowering them to fulfill devolved development and governance functions. Unlike deconcentration, which merely transfers “authority to sub-national branches of the central state, often to line ministry officials based in local areas” (Crawford & Hartmann, 2008), devolution, also sometimes referred to as democratic decentralization, transfers political, decision-making, fiscal and administrative powers, authority and resources to sub-national governments that are both democratically elected and relatively independent of the central government (Crawford & Hartmann, 2008). Devolution is, therefore, a comprehensive and most potent form of decentralization. The central government cedes local control over financial, administrative, political, and decision-making matters through a process of devolution. As Kanyinga (2016) illustrates, it “*gives the citizens and their elected officials the power to make decisions on public affairs. In this regard, devolution enhances democracy and self-governance by giving people a voice in making decisions regarding public policies that concern them*”.

The proponents of devolution argue that devolutionary reforms strengthen local democracy, citizen participation, transparency, accountability, responsiveness, efficiency, and effectiveness, among other cardinal pillars of good local governance. Corruption is a global governance problem that many countries are grappling with. Notwithstanding that corruption has existed for ages and is a commonly used concept, there is no definitional consensus in the literature. Corruption, similar to devolution, has been defined and interpreted differently. Corruption refers to the misuse of entrusted power and public office for personal gain (Duri, 2021, p. 4). Corruption involves the well-calculated violation of the arm's length principle for personal benefit. The arm's length principle applied to local governance emphasizes the centrality of objectivity and neutrality in local decision-making processes. Once personal relationships and political considerations influence local government decisions, conflict of interest, nepotism, and elite and state capture, among other unethical practices, find fertile

ground. Such unethical practices jeopardize the efficient and effective functioning of public organizations. Corruption can have a profoundly devastating impact on the availability, quality, and accessibility of human rights-related goods and services, thereby undermining the rule of law and the effectiveness and legitimacy of state institutions and processes (Tinarwo et al., 2019). The centralization of power has often been associated with corrupt practices, such as patronage and rent-seeking behavior. Therefore, hopes are high that the implementation of devolution could strengthen transparency and accountability and improve public service delivery at the local level, where citizens have the right and voice in determining the allocation of national resources. For instance, section 13(2) of the Zimbabwean Constitution stipulates that measures for national development must involve the people in formulating and implementing development plans and programmes that affect them (Government of Zimbabwe, 2013). The participation of local people in matters that affect them has positive ramifications for the protection, promotion, fulfillment, and respect of several human rights enshrined in the Constitution (Crawford, 2007). Thus, devolution can be viewed as a more people-centred, just and democratic system of governance that promotes transparency, accountability in the use of public resources, and public participation in development processes (D'Arcy & Cornell, 2016).

2.2. Devolution and Corruption Management at the International Level

Experiences across the globe have yielded mixed results regarding the relationship between devolution and corruption management at local government levels. As Duri (2021) avers, "the effect of devolution on corruption is ambiguous." One of the central arguments that devolutionary advocates advance is that devolution brings governments closer to the people, increases transparency and accountability, and, in the process, reduces corruption (Crawford, 2007). Since the 1980s, devolution has been theoretically linked with establishing and strengthening downward accountability strategies, which could enable local people to demand accountability from political and administrative duty-bearers (Wallis & Oates, 1988; Zarychta et al., 2024). Through devolution, the electorate, if actively involved in local governance issues, can closely monitor the activities and behaviors of local bureaucrats and politicians, thereby minimizing the chances of corrupt dealings (Dawson et al., 2025). In support of this argument, D'Arcy and Cornell (2016) argue that devolution empowers voters to hold corrupt and incompetent local officials accountable. Thus, devolution accompanied by meaningful local democracy is a disincentive for local government officials to engage in unethical conduct.

Several empirical studies show a positive relationship between devolution and corruption. Lederman et al. (2005) and Freille et al. (2007) have demonstrated that devolutionary reforms curb corruption. Based on a panel dataset for industrialized and emerging countries, Lederman et al. (2005) found that central government political, fiscal, and administrative transfers to subnational governments decreased the number of corruption cases. Freille et al. (2007) examined the impact of budgetary decentralization and constitutional provisions for decentralization on corruption, utilizing data from 177 countries. Their study, however, revealed conflicting results on the relationship between devolution and corruption. On the one hand, their study showed that fiscal decentralization lowers corruption tendencies. On the other hand, devolution has increased corruption in cases where governmental tiers overlap, functions are duplicated, and accountability lines are blurred. However, in the preceding case, it would be unfair to blame devolution for poor results. The case, however, provides important insights into the design of devolution. Clarity of roles and functions is crucial for the effective functioning of devolution. Lessmann and Markwardt's cross-country data analysis on the effect of devolution on corruption also emphasized the centrality of the context in implementing devolution reforms (Lessmann & Markwardt, 2010). Their study revealed that devolution reduces corruption in countries with high levels of media freedom. It also highlighted that devolution suffers in countries with fragile monitoring mechanisms.

De Mello and Barenstein (2014) confirm that devolution correlates with low levels of corruption. Using a dataset of 78 countries, De Mello and Barenstein (2014) examined the performance of fiscal decentralization in subnational governments and found that higher fiscal decentralization results in lower corruption. Ivanyina and Shah's (2011) study further advances the devolution-reduces-corruption thesis. Through a sample of 182 countries

and using both reported and perceived corruption cases, they found that a high degree of devolution correlates with reduced corruption levels (Ibid).

Literature shows that, in some instances, the implementation of devolution does not necessarily translate into improved accountability and anti-corruption initiatives. Instead, devolving governmental powers and responsibilities to subnational governments tends to deepen corruption (Duri, 2021). As Nyikadzino and Vyas-Doogapersad (2020) point out, devolution does not guarantee accountability. If not adequately supported, governments can devolve into corruption and inefficiency. An empirical study by D'Arcy and Cornell (2016) revealed that the implementation of devolution in Kenya has not eliminated corrupt and unethical practices, but instead transferred them to the local levels. Their findings highlighted that devolution has been achieved via the devolution of patronage networks, resulting in the persistence of the "our turn to eat" nature of ethnic patronage politics. Resultantly, devolution further marginalized ethnic minorities in some countries.

Reports by Tödtling et al. (2018) and Ngigi and Busolo (2019) show that the transfer of power, fiscal and administrative powers, and resources to the local levels has opened opportunities for corruption due to the active role of subnational governments in employment, contracting, service delivery, and the execution of development programmes. In addition, local governments, given their size, "are more corruptible and easier to capture as only a small segment of the government needs to be influenced" (Duri, 2021). Several empirical studies indicate the likelihood of captured and more corrupt devolved government systems (Ibid; Nyikadzino & Vyas-Doogapersad, 2020). A large-scale study involving data from 36 countries revealed limited evidence showing that devolution improves local accountability (Kolstad, Somville, and Wiig, 2014). Their study found that devolution increases interactions between government officials and residents, thereby increasing the incidence of corruption (Ibid).

3. Methodology

The study employs a qualitative research approach to understand the experiences of stakeholders regarding the potential of devolution in addressing corruption in local authorities in Zimbabwe. A case study research design provided the roadmap for the study. Adopting a qualitative case study design is motivated by the fact that it facilitates the exploration and understanding of the meanings that people attribute to a social phenomenon or the dynamics surrounding corruption (Neuman, 2014). This helps explore the meanings ascribed to and perceptions of people regarding corruption and how devolution can help curb it. Thus, the interaction between the researchers and key participants involved in the implementation of devolution enabled the researchers to understand the reality from the research participants' point of view.

The data was mainly collected through a triangulation of documentary searches and in-depth interviews. Purposive sampling was used to select a sample of 15 to 20 key informants comprising senior administrative officials and councillors in local authorities, senior central government officials in ministries and departments, including members of the Devolution Taskforce, civil society organizations, development partners, and academia. The collected data were analyzed and organized thematically. Ethical principles guided the study, in line with the Raoul Wallenberg Institute of Human Rights and Humanitarian Law (RWI)'s ethical guidelines, which include respect for gender, informed consent, avoidance of harm, voluntary participation, confidentiality, anonymity, and the secure storage of collected data. Due to the COVID-19 pandemic, most interviews were conducted virtually for those with internet access. For those without access, interviews were conducted via telephone or through face-to-face meetings, all while adhering strictly to COVID-19 guidelines. For instance, researchers always used face masks and sanitizers and applied social distancing.

4. Major Findings

Findings from both documentary searches and in-depth interviews highlighted that capacitated and empowered sub-national tiers of government have the potential to combat systemic and widespread corruption, as locally controlled systems of government allow the actions and decisions of those in power to be scrutinized by their people. Encouraging the public to participate in local government affairs meaningfully promotes downward accountability, a key tenet of good governance. Participant 1 noted the following: *Devolved government units allow for some checks and balances on how central government officials utilize public resources as they implement public policies. This enables public resources to effectively target the welfare of society's most vulnerable groups and prevent the diversion of public resources for personal gain by self-serving government officials.*

Based on the interviews, it appears that development partners have demonstrated that devolution is a better governance approach that can assist the public, including grassroots citizens, in gaining increased access to leadership authorities. Devolution also enhances the implementation of anti-corruption controls by enabling citizens to participate in local government affairs. Participant 2 noted the following: *Relinquishing power and authority to manage subnational levels of government helps build an environment that engages grassroots stakeholders in the governance process, as it offers them opportunities to contribute to mitigating corruption.*

However, even though Zimbabwe has been implementing devolution for the past years, the findings from both documentary searches and in-depth interviews revealed that corruption is still rife in both the central and sub-national tiers of government. For instance, both the 2019 and the 2021 Auditor General's Reports on Local Authorities on the COVID-19 Pandemic Financial Management and Utilisation of Public Resources in Zimbabwe show that corruption is endemic in local authorities and is characterized by lack of good governance with key features such as the absence of policies, non-compliance with statutory procedures, inadequate record keeping, poor and non-financial reporting among others, all resulting in the diversion of public resources for personal use.

While Zimbabwe has made several international, regional, and domestic commitments to combat corruption, documentary searches have highlighted that these legal frameworks lack alignment and harmonization with the current Constitution and other domestic statutory instruments and procedures. Additionally, these policy instruments lack full implementation and enforcement because the country is still considered one of the most corrupt nations in the world and the region, losing approximately USD 3 billion annually in illicit financial flows.

Moreover, although Zimbabwe has established several institutions to fight corruption, they are characterized by poor coordination, duplication of tasks and responsibilities, and a lack of the requisite institutional and human resource capacity to discharge their duties. The governance deficiencies in Zimbabwe's formal anti-corruption value chain are also worsened by a lack of adequate budgetary support from the treasury, which stifles their efforts to effectively address the scourge of corruption, particularly at the local government level. Participant 3, who is an academic, noted the following: *Key anti-corruption institutions, such as the Zimbabwe Anti-Corruption Commission (ZACC), the National Prosecuting Authority (NPA), the Zimbabwean Parliament, and the Auditor General, lack adequate financial, material, and human resources to carry out their duties effectively. The worsening macroeconomic conditions affecting the country have led to an excessive brain drain from these government institutions, with experienced and skilled personnel leaving their posts in search of more lucrative opportunities.*

In-depth interviews with civil society organizations revealed that devolved units of the government often lack effective anti-corruption strategies to combat corruption at the subnational level. The legal and institutional frameworks, as well as the necessary methods and tools, to prevent, detect, and punish corruption are often weak and insufficient. While the Zimbabwean government has made efforts to establish anti-corruption courts at the provincial level to address corruption cases at the subnational level, these courts are often hindered due to a lack of adequate human and financial resources. ZACC, which has the responsibility to investigate corruption, has been centralized since its establishment until late this year, when it established itself at sub-national levels, implying that it was difficult to effectively fight corruption that occurs at decentralized levels of government.

Additionally, ZACC also lacks the prosecuting powers, which are the responsibility of the National Prosecution Authority (NPA). The lack of harmonization, fragmentation, and duplication of roles in institutions and laws at national and sub-national levels also stifles efforts to combat corruption in local authorities. Like other government institutions, ZACC lacks the necessary material and financial resources, as well as skilled personnel, to effectively combat corruption in Zimbabwe.

The study also established that, for the year 2018, only three out of 92 local authorities in Zimbabwe were able to produce audited financial statements, despite increasing calls for transparency and accountability regarding how both local and central government authorities use public resources. Local authorities in Zimbabwe are facing significant governance challenges, including 59 governance issues, such as the absence of policies and procedures manuals and non-compliance with statutory regulations, among others. Participant 4 noted the following: *Our local authorities are strapped with multiple governance deficiencies. For instance, most are not conducting financial auditing and reporting, or may face capacity-related challenges in doing so. Most of the local authorities in Zimbabwe lack established transparency and accountability mechanisms. As in many countries, these governance measures are typically implemented at the national level, rather than at subnational levels of government.*

Ultimately, the research revealed that local authorities in Zimbabwe lack the necessary practices and strategies to engage citizens meaningfully and promote public participation in managing local government affairs. This contrasts with the principles of good governance and democracy, which call for the involvement of the general public in decision-making and for pressuring authorities to demonstrate transparency and accountability in the use of public resources. Participant 5 noted the following: *Most grassroots individuals are unaware of the importance of their constitutional right to participate in decision-making on matters of government. Civil society organizations must continuously advocate and lobby for the meaningful engagement of citizens in both central and local government business to promote transparency and accountability.*

5. Conceptual Framework for Implementing Devolution to Reduce Corruption in Zimbabwe's Local Authorities

Based on the results of this study, the authors propose the following conceptual framework (See Figure 1 below) for implementing devolution to reduce corruption in Zimbabwe's local authorities. To reduce corruption in Zimbabwe's local authorities through the implementation of devolution, it is crucial to promote downward accountability by fostering a culture of integrity through bottom-up approaches.

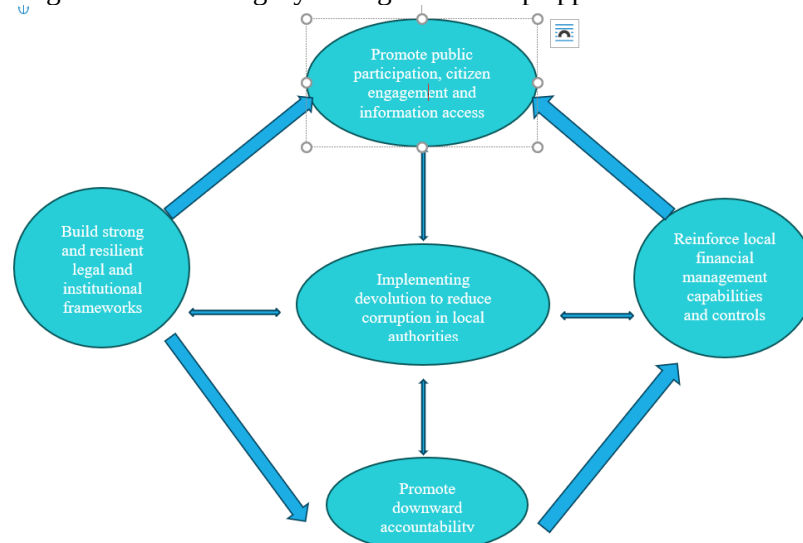


Figure 1. Proposed conceptual framework to reduce corruption through the implementation of devolution in Zimbabwe's local authorities

Source: the authors

Furthermore, building strong and resilient legal and institutional frameworks to combat corruption at both national and subnational levels is crucial.

6. Discussion

To reduce corruption in Zimbabwe's local authorities through the implementation of devolution, local authorities must adopt a bottom-up anti-corruption strategy and gain the buy-in of regional political leaders and grassroots citizens. This is mainly because they have the potential to lobby and advocate for the enactment of anti-corruption policies at sub-national levels of government. The most successful governments globally consistently and continuously promote a culture of upholding anti-corruption principles at both central and local government levels. Likewise, subnational governments that demand a culture of transparency and downward accountability to their central government officials earn high standards of integrity.

The legal and institutional frameworks that guide the fight against corruption at the central and local government levels must be strengthened to combat the scourge of corruption. The anti-corruption legislative frameworks in Zimbabwe are highly fragmented and lack alignment with the Constitution of Zimbabwe. Similarly, the key institutions for fighting corruption in Zimbabwe are poorly coordinated, lacking harmonization, and are characterized by the duplication of roles and responsibilities. Additionally, there is a need for adequate budgetary support, the provision of material resources, and the attraction and retention of skilled human resources in all anti-corruption institutions at both local and central government levels. Finally, national government support is also essential in enforcing anti-corruption measures at sub-national levels of government.

This study reveals that most local authorities in Zimbabwe face challenges with poor financial management. Implementing adequate regulatory and financial control policies and procedures is crucial to mitigate the risk of abuse and diversion of public resources for personal use, which can occur through various means, including discretionary spending, license and permit issuance, and procurement processes. Equally, local authorities need to be given adequate investigative and enforcement powers in cases of abuse of public resources by officials or the public to ensure a more effective and transparent decree, as well as integrity. Lastly, there is a need for an effective whistle-blower policy that will protect citizens and other stakeholders while preserving anonymity when reporting corruption at both local and national levels of government.

For devolution to effectively address corruption in local authorities, citizens must be meaningfully involved in decision-making and other forums that promote transparency and accountability in the use of public resources. For instance, citizen engagement forums such as regularly convened meetings, assemblies, and hearings can empower citizens and give them a voice against corrupt public officials. Citizen participation in these forums helps shape anti-corruption policies and strategies at the local level.

Corruption at both the central and local government levels in Zimbabwe and elsewhere around the world often thrives when citizens and other stakeholders are denied their right to access information on how public resources are utilized. For instance, this research established that most local authorities face challenges or fail to produce financial reports and audited accounts. Access to information, such as revenue and expenditure, by citizens, is the most effective tool for reducing corruption by public officials at both national and subnational levels of government. In this era of digital technologies, e-government tools can enhance public administration and promote the standardization of transactions, thereby minimizing the discretionary use of powers and abuse of office by public officials. Ensuring the independence of the media is crucial, as it empowers citizens to make informed choices and report on poor service delivery and corrupt practices by those in public office.

7. Conclusions

The practical implementation of devolution could help tackle corruption in local authorities and improve the provision of human rights-related goods and services. However, addressing corruption at both the central and subnational levels of government is a complex task. There is a need for strong legal and capacitated institutional frameworks. The government must prioritize adequate budgetary support for anti-corruption institutions and ensure they are staffed with skilled personnel and supported with sufficient material resources to perform their duties effectively. Other corruption-related challenges that local authorities in Zimbabwe face include people with low incomes or non-submission of financial reports and audited accounts, as well as the non-disclosure of critical information to citizens. Addressing such problems requires concerted efforts to promote a culture of information sharing and implement measures that foster transparency and accountability.

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ENHANCING STUDENT LEARNING IN ACCOUNTING: BRIDGING ONLINE AND CLASSROOM EDUCATION IN A SELECTED HIGHER EDUCATION INSTITUTION IN SOUTH AFRICA**Thami Isaac Makhoba ^{1*}, Yusuf Lukman ², Newlin Marongwe ³, Bulelwa Makena ⁴**^{1*,2,3,4} *Walter Sisulu University, South Africa**Received 11 January 2026; accepted 16 March 2026; published 30 March 2026*

Abstract. The research investigated methods to improve virtual and classroom-based accounting education by analysing student feedback on their learning experiences and the adaptation techniques they used. The study used narrative and semi-structured interviews with 12 final-year accounting students at a university implementing multimodal learning to explore their experiences and perceptions of online and face-to-face learning. The research showed that online learning provides students with flexibility and access to distant peers, yet creates difficulties with maintaining focus, engaging in social interaction, and coordinating group work. Students stressed that self-discipline, effective time management, and active participation in technological tools and support services lead to success. Students found that collaborative platforms, online simulations, and educational videos helped them better understand the material while working on projects. Students stressed that peer interaction and instructor engagement are vital to maintaining motivation and achieving academic success. The research found that blended learning, which combines the advantages of online and classroom instruction, produces the best results for student achievement, class participation, and overall learning satisfaction. The research suggests that students need help developing self-discipline and time management abilities, and that should be supported by better technological infrastructure, communication systems, and interactive teaching approaches to improve accounting education delivery methods.

Keywords: Accounting Education; students; Blended and Hybrid Learning

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JEL Classifications: A2**1. Introduction**

The rise of online learning platforms has transformed accounting education, driven by technological advancements, evolving educational demands, and the need for remote learning during the COVID-19 pandemic. Research shows mixed results: while some studies, such as McCarthy, Kusaila and Grasso (2019), found better student performance in online and hybrid formats than in face-to-face learning, others, such as Riggs (2023), highlight that success varies depending on individual circumstances.

Student performance is influenced by multiple factors, including class size, lecturer attributes, student effort, prior knowledge, language of instruction, attendance, and readiness for assessment (Mlambo, Albert & Khoza, 2023). Learning occurs within complex environments shaped by external factors, such as teaching methods and platforms, and internal factors, like motivation and emotions (Depari, Sihombing & Siahaan, 2024).

Online learning in accounting is growing in popularity in the Eastern Cape and South Africa, driven by increased access, flexibility, and cost-effectiveness. However, perspectives on its effectiveness remain mixed. Some studies show that online learners perform as well as, or even better than, their face-to-face counterparts, with many students appreciating the convenience and accessibility. Success in online accounting education often depends on students' motivation, self-discipline, and ability to manage autonomous learning. While online learning is still developing in Africa, evidence suggests it has the potential to enhance access and learning outcomes. However, challenges such as technology barriers, varying engagement levels, and limited research in African contexts make its effectiveness uncertain.

Researchers highlight the need for deeper analysis of learner experiences and behaviours and advocate for integrating learning science and computer science to optimise both digital and physical learning environments. While online learning shows promise for accounting education in South Africa, more context-specific research is needed to understand its benefits, challenges, and best practices fully.

2. Statement of the Problem

The growing adoption of online learning in accounting education, particularly in South Africa's Eastern Cape Province, has introduced new opportunities and challenges for students and lecturers. Online platforms offer flexibility, increased access to education, and potential cost benefits, making them an attractive alternative to traditional face-to-face methods. However, evidence on their effectiveness remains mixed. Some studies report that students in online programmes perform as well as, or even better than, their peers in face-to-face settings, with higher levels of satisfaction and adaptability. In contrast, other research highlights lower performance, reduced engagement, and dissatisfaction with online learning experiences.

These inconsistencies indicate that online and face-to-face learning success is influenced by a complex interplay of factors, including student motivation, self-discipline, prior knowledge, lecturer attributes, and technological readiness. Despite this, there is limited context-specific research in South Africa, particularly in the Eastern Cape, on practical measures to enhance learning experiences and outcomes across both delivery modes. Without a clear understanding of these measures, universities may struggle to design strategies that foster effective learning, improve student satisfaction, and enhance academic performance in accounting education.

This study aims to identify and evaluate specific practical measures that enhance both online and face-to-face accounting learning, demonstrating how these approaches can effectively address the diverse needs of students and lecturers in the rapidly evolving landscape of higher education. By focusing on integrating innovative teaching methods and technological tools, this research will provide insights that can significantly improve academic outcomes and engagement in accounting education.

2. Theoretical Framework and Literature Review

2.1 Socio-Constructivist (Socio-Cultural) Theory

This study is grounded in the principles of Social Constructivism, which emphasises the critical role of social interactions and cultural contexts in shaping knowledge acquisition (Bentalha & Alla, 2024). According to this theory, learning is an active, collaborative process where individuals build their understanding of the world through experiences, dialogue, and interaction (Kaufman, 2018). Knowledge is therefore seen not as an isolated product but as a social construct, co-created through engagement, collaboration, and shared experiences (Luckay & Laugksch, 2015).

Social constructivism was particularly relevant to this study as it provided a lens for exploring how students perceive and engage with online and face-to-face accounting learning environments. It highlights that effective learning is fostered when students interact, share ideas, and support each other, gradually taking ownership of their learning journey.

Furthermore, the theory underlines the importance of social presence in digital learning environments. Webinars and online discussions enhance students' perception of instructor presence, making interactions more personal and engaging (Dulfer, Gowing & Mitchell, 2025). Online platforms also offer safe, collaborative spaces where students can co-construct knowledge with peers and instructors (Salas-Pilco, Yang & Zhang, 2022). Through such cooperative learning, students internalise and personalise information more effectively, deepening their conceptual understanding. The theoretical framework highlights the interplay between social constructivist principles and the realities of modern educational practices. It emphasises the need for academic institutions to foster environments where students can thrive through interaction, support, and personalised learning pathways. This framework will guide the study into the perceptions and experiences of final-year accounting students in both online and face-to-face learning contexts. It will be used to present the study's findings.

2.2 Literature Review

Students show a favourable inclination towards accounting and often feel they possess strong generic skills, such as confidence in online learning methods. Additionally, students generally hold positive views of teachers' effectiveness in using online learning tools and materials. However, some students prefer face-to-face instruction over online or computer-assisted learning. This preference stems from the traditional nature of face-to-face teaching, where students have direct access to teachers for clarification as needed. Furthermore, students emphasise the importance of teacher guidance during activities or pre-activities, as well as immediate feedback and clarification of misunderstandings when the teacher is physically present.

Adaptive e-learning is a learning process in which content is tailored to students' learning styles or preferences. By offering customised content, adaptive e-learning environments improve the quality of online learning. The customised environment should be adaptable to each student's needs and learning styles within the same course. Adaptive e-learning dynamically adjusts instruction based on students' learning styles and personalises it to enhance or accelerate a student's success. Directing instruction to each student's strengths and content needs can minimise course dropout rates, improve student outcomes, and accelerate the process.

In a study conducted by Sims (2025) within a South African faculty of Economic and Management Sciences, the sustained use of LMS platforms beyond the COVID-19 emergency phase is examined. The findings indicate that although the adoption of LMS has enhanced institutional access and flexibility, the effectiveness of student learning is significantly influenced by well-structured course design, interactive features, and lecturers' digital competency. Merely uploading passive content such as slides and PDFs is inadequate for fostering deep learning in accounting. In contrast, incorporating quizzes, discussion forums, analytics-driven feedback, and carefully structured learning pathways markedly improves student engagement and conceptual understanding. The results suggest that bridging online and classroom education requires more than just technological access; it necessitates intentional pedagogical design within digital spaces. This approach aligns with constructivist and connectivist theories, emphasising that learning is socially mediated and interconnected rather than solely content-driven.

The personalised learning approach provides an effective, customised, and efficient learning path so that every student can participate in the learning process (El-Sabagh, 2021). On the other hand, learning styles are an essential issue in learning in the twenty-first century, with students expected to develop self-awareness and engage actively with the environment. In conventional e-learning environments, instruction has traditionally followed a one-size-fits-all approach, meaning all students are exposed to the same learning procedures. This type of learning does not account for students' diverse learning styles and preferences. The development of e-learning

systems has accommodated and supported personalised learning, in which instruction is tailored to a student's individual needs and learning styles (Shemshack & Spector, 2020). Some personalised approaches let students choose content that matches their personality (El-Sabagh, 2021). The delivery of course materials is an important issue of personalised learning. Moreover, designing an effective, well-adapted e-learning system is challenging due to learners' diverse needs (Gadi et al., 2026). Regardless of the use of e-learning, shifting to adaptive e-learning environments can reinforce students' engagement. However, a learning environment cannot be considered adaptive if it is not flexible enough to accommodate students' learning styles.

A mode of education known as blended learning is a type of teaching and learning that “mix(es) various event-based activities self-paced learning, live e-learning, and face-to-face classroom” (Alonso et al., 2005:3). Effective blended learning is characterised as dynamic (enabling access to experts and high-quality resources online), occurring in real-time, fostering collaboration, personalised, and comprehensive (by providing learning events from multiple sources, so that learners can select the format most suitable for them) and enabling learning communities (Alonso et al., 2005). The theme of student perceptions, attitudes, and preferences for blended learning emerges as the second-most-researched topic (after instructional design) in the recent systematic review of the blended learning literature (Gadi et al., 2026). The same study also found that, in general, students tend to report high levels of satisfaction with blended learning and prefer it over other learning formats.

Winfield and Whitelaw (2025) investigate students' perceptions and performance in a blended learning environment that incorporates a flipped classroom and Lightboard technology. Their findings indicate improved engagement, more precise conceptual explanations, and stronger academic performance in accounting-related modules. Students reported that pre-class video lectures allowed them to process foundational knowledge independently, while classroom sessions focused on application, discussion, and problem-solving. The flipped model thus facilitated deeper cognitive engagement and more meaningful interaction between the lecturer and students.

This study supports broader evidence that blended learning, when intentionally structured, enhances active learning and accountability. In accounting education, which requires procedural fluency and analytical reasoning, flipped approaches enable classroom time to be devoted to tackling complex financial scenarios rather than content transmission.

Other studies of blended learning further confirm that, overall, students favour this learning model because they perceive it as useful for their studies (Khine & Lourdasamy, 2003). Recent research (Owston, York & Murtha, 2013) comparing student perceptions of blended learning courses (as measured across such metrics as satisfaction, convenience, engagement, and achievement of learning outcomes) with their actual achievement (final course grade) found that there was a powerful relationship between normal and grade high achievers were the most satisfied, stating they would study in the blended mode again, their preference for the blended format over fully face-to-face or fully online modes clearly articulated. The study concluded that low-achieving students may not be able to cope with the blended format as well as high achievers; hence, a choice of modes of study, where feasible, was a key recommendation (Owston, York & Murtha, 2013). In summary, factors such as flexibility, accessibility, and higher levels of autonomy and self-regulation in learning, as well as opportunities for face-to-face encounters alongside independent study and streamlined feedback provision, are among the main reasons students prefer blended learning to fully face-to-face or online education.

Some case studies and literature reviews have discussed the numerous new practices and technologies adopted in early reactive studies (Bond et al., 2021). Many of these papers have emphasised the need to attend to aspects inherent to student-centred learning environments, such as student motivation, interaction, engagement, and self-efficacy, as well as teacher readiness (Crawford et al., 2020). However, research has yet to systematically review

and map these emerging digital practices in student-centred, collaborative, and competency-focused learning environments.

The studies uniformly emphasise the importance of student interactions in fostering active, collaborative, and student-centred learning environments. These interactions have received substantial attention in 10 studies, several of which have reported successful collaborative learning experiences during the pandemic (Farnell et al., 2021). The results demonstrate various benefits of online collaborative learning: it significantly enhances student participation, increases transversal competencies, including communication, cooperation, and empathy, and improves team effectiveness and bonding. During the transition to fully online environments, collaboration and communication among students were commonly encouraged through tools supporting both synchronous and asynchronous communication, learning management systems (LMSs), and video conferencing (used in 16 out of 18 studies in the review). In one study, breakout rooms, polling, and annotation features were emphasised to create an inclusive setting in which isolated students could collaborate.

Online collaboration tools were used to build a sense of togetherness and co-presence, and to compensate for the lack of in-person interactions. Furthermore, one study reports that online tools enabled better, more efficient collaboration than face-to-face settings, suggesting that they prompted students to be more diligent in their communication. However, improved efficiency in this regard cannot be definitively attributed to online instruction. On the other hand, other findings suggest that motivation and team productivity were hindered in the online environment due to the lack of informal interactions and discussions among group members, ultimately leading to a shift toward cooperation rather than collaboration. The study concludes that the modern approach, including online methods, is indispensable for enhancing educational performance (Parker, Santos & Dancy, 2021).

Papageorgiou et al. (2024) adopt a social justice perspective to investigate the use of e-learning applications in accounting at residential universities. Their findings highlight issues of digital inequality, including disparities in device access, data costs, and varying levels of digital literacy. While e-learning applications have improved flexibility and access to resources, structural inequalities have hindered equitable participation. The authors contend that to bridge online and classroom education effectively, it is crucial to address systemic disparities to prevent the digital divide from exacerbating academic inequality. In a similar vein, Zaly and Ngwenya (2024) in the South African Journal of Education shed light on the challenges preservice accounting teachers face during remote learning. Students reported feeling isolated, experiencing diminished peer collaboration, and having limited opportunities to clarify complex accounting concepts in real time. The findings suggest that although online education offers greater accessibility, it is essential to incorporate collaborative structures and maintain a consistent lecturer presence to uphold academic rigour and sustain student motivation.

3. Methodology, Population and Sampling

The study used interpretivist qualitative methods to examine how students perceive and understand online learning compared with traditional classroom learning of accounting content. The research method enables a complete understanding of the participant experience because it recognises that personal realities develop through social interactions, cultural elements, and linguistic expressions. The interpretivist approach, according to Lyu (2024), requires researchers to understand students from diverse backgrounds while recognising their social positions within the research environment. The interpretivist approach in this study enables researchers to uncover students' detailed experiences as they learn through different educational methods.

This qualitative descriptive case study research design provides detailed information from real-world contexts, enabling researchers to study students in their natural learning environments. Case studies are used to develop a detailed understanding of complex research subjects. The research design enables the generation of findings that maintain their context while applying to educational settings with similar characteristics.

The study takes place at an educational institution which uses multimodal learning methods to create an appropriate context for this investigation. The research design enables researchers to examine student learning experiences across online and traditional classroom environments, thereby validating the need for qualitative research methods. The case study design enables researchers to understand multiple student viewpoints, which becomes essential for developing better educational methods.

The research focuses on students from the Department of Business Management Education who study Accounting at the selected institution. The research focuses on final-year students because their extensive academic experience provides valuable insights into their educational development. The research follows purposive sampling principles to select participants who meet the study's requirements. The selection of participants for this study follows the principles of purposive sampling because it enables researchers to obtain detailed qualitative information during exploratory research (Edwards et al., 2022).

The research methodology used narrative and semi-structured interviews as the primary methods for data collection. The free-flowing nature of narrative interviews enables participants to share their complete educational experiences through detailed accounts (Muneeb et al., 2022). The research method produces extensive knowledge that surpasses basic answers to deliver complete stories about individual learning experiences. The combination of narrative and semi-structured interviews provides researchers with structured yet flexible methods for detailed exploration of specific topics (Muneeb et al., 2022).

The research included 12 final-year students, with equal numbers of males and females, to represent the Department of Business Management Education's student demographics. The researchers selected this number of participants to achieve diverse viewpoints, which helps minimise bias and provides a comprehensive understanding of the research subjects.

The researchers conducted each interview session in private rooms, providing quiet spaces for participants to share their thoughts freely. The research environment produced high-quality data while creating an atmosphere where participants could express their authentic thoughts and experiences. The interviews were conducted in English to ensure effective communication and precise data collection during the research process. The respondents were interviewed during the second semester of the 2025 academic year, specifically between August and October 2025. This period was strategically selected because students had already experienced both online and face-to-face instructional components within the blended accounting modules. Conducting the interviews after exposure to both modalities enabled participants to reflect comparatively on the use of online learning management systems, digital assessments, and in-class engagement strategies. Interviews were conducted after the completion of at least one major online assessment and one classroom-based assessment task to ensure that participants could provide informed perspectives on learning experiences, assessment practices, and academic performance outcomes. This timing enhanced the credibility and depth of the qualitative data, as respondents were able to provide reflective rather than anticipatory responses.

The research employed Purposive sampling to obtain valuable insights through targeted participants who would best answer the research question (Okeke et al., 2023). The study used a targeted approach to select participants who would provide the most valuable insights into learning accounting in both online and traditional classroom settings.

4. Findings

The research findings from narratives and semi-structured interviews were presented in alignment with the study's sub-questions and the identified themes related to each question. The report begins with narrative responses to a single interview question, followed by semi-structured interviews comprising 14 questions, organised into five themes. The presentation of the semi-structured findings progresses from Theme One to Theme Five.

Methods and support

Students reported various perceptions regarding the tools for online learning and the strategies they utilised for time management. Some students expressed the importance of self-discipline, for instance, **ASF5** highlighted that: *Some of the most helpful tools and platforms for studying accounting online, such as Khan Academy and online accounting simulations, have been lifesavers for visualising concepts, educational video channels that explain accounting concepts, and online tutoring services or forums for getting help from peers or instructors. When managing group projects in a virtual setting, we maintained clear communication, kept things well organised, and utilised online collaboration tools. Tools like shared documents, video conferencing, and project management platforms were invaluable.*

When it comes to time management, self-discipline, and support services, this is what **ASF5** had to say: *Time management is crucial for juggling multiple online courses. But here are what worked for me: creating a weekly schedule that blocks out time for each course, setting realistic deadlines for completing assignments and studying, and, lastly, utilising the university-provided time management tools and calendar apps. In terms of Self-discipline, yes, it is essential for success as an online accounting student. You need to be proactive in setting goals, managing your time, and staying motivated without the constant structure of a traditional classroom. For support services, the university offered many online programs, including tutoring for specific accounting concepts, counselling to manage stress and stay motivated, and technical support for troubleshooting online platforms.*

ASM3 outlined that he had his own way of dealing with online learning: *"Well, I think self-discipline is crucial in online learning. As a student, you must stay motivated and focused without direct supervision. "Taking initiative to seek support, resources, and networking opportunities and staying organised and on top of deadlines for assignments and assessments. I did manage time and to stay organised by creating schedule to balance course work and personal commitments, setting time reminders and using time management applications App Collaborative platforms for group projects for example, Microsoft Teams again Accounting software (e.g., QuickBooks, Excel) for practice and simulations, online video tutorials and educational resources also by scheduling regular virtual meetings to check in and troubleshoot any issues and dividing responsibilities fairly by holding each team member accountable and provide constructive feedback and be willing to adapt as needed.*

ASM2 saw online learning as a challenging mode for group projects and also for managing time from home: *Distractions at home are plentiful! Juggling multiple online courses requires serious time management. Creating a clear schedule and sticking to it became essential. Self-discipline is key because being at home differs from being in a classroom with peers. Group projects online can be challenging. Communication platforms like shared documents and video conferencing were crucial for staying on the same page, so online, it was just confusion after confusion.*

ASM1 stated that: *I religiously use online calendars and to-do lists, and being self-disciplined is crucial. No professor or lecture is breathing down your neck, so you have to be proactive about sticking to your schedule and deadlines. Group projects can be tricky online; we rely heavily on video conferencing and shared documents. It would be great if online programs offered built-in collaboration features specifically for accounting tasks. When it comes to support services, stay calm and have the school's tech support number on hand. Luckily, most lecturers are understanding and allow for resubmissions in case of technical difficulties.*

When it comes to the tools used for group projects, students all agreed that they used video conferences and shared documents, but also highlighted that when it comes to online learning, self-discipline is an important factor, and studying from home comes with its challenges compared to a classroom setting, where they also have communication and the ability to focus on learning.

The participants were allowed to outline how they networked with one another, as peer-to-peer engagement is essential, and to advise students who have yet to encounter this type of teaching and learning. **ASF4** stated that *networking has shifted to virtual platforms and that LinkedIn and online forums have allowed me to connect with peers and instructors. For incoming online accounting students, embrace the flexibility! Utilise online resources, do not be afraid to seek help, and most importantly, develop strong time management and self-discipline. Remember, the online world is your virtual classroom; conquer it, and you will conquer the accounting world!*

Students had common views: **ASM5** thought it required too much effort to engage with their peers compared to physical interaction. The participant stated that: *Networking with peers and instructors definitely takes more effort in an online environment. However, many programs offer online discussion forums, virtual office hours, and career fairs to help bridge the gap. However, it is not better for you than for your classmates.*

ASM5 advised the upcoming accounting students: *Well, for incoming accounting students new to online learning, my advice is that they should develop strong time management and organisational skills, which are essential, be proactive in reaching out to instructors(lecturers) and classmates for help and interaction and also do not forget to take advantage of the flexibility online learning offers to create a study schedule that works for you. Do not be afraid to experiment with different online learning tools and resources to find what works best for you.*

Student **ASF3** had a different view on the online mode being an ineffective way of networking with his peers and outlined that it helped her to connect with different people whom she might work with someday, who were not only her classmates but also people who were guests in their online classes: *Sure, I get it. Missing out on in-person hangouts with classmates can be a bummer, especially when making friends. However, online courses are not all bad for networking. Some have discussion boards where you can chat with classmates about the work. We can share ideas, debate topics, and work together on group projects. Even though it is virtual, it can still lead to friendships or connections that might be useful. Plus, online courses have people from all over the place! That means I get to meet folks with different experiences and backgrounds, which is way cooler than being stuck in a classroom with the same people I see every day. It opens doors to a new network I would not have otherwise. Moreover, the stuff I learn online can be a great talking point at conferences or online forums. Someone I met in class may be a future collaborator or even give me a good recommendation someday.*

Only one student preferred the traditional teaching and learning mode to online learning. Said **ASM1**: *Ugh, online learning does not do it for me. Do not get me wrong, the flexibility is nice, being able to learn in my PJs at 3 am sounds like a dream. However, where is the social aspect? I miss the buzz of a classroom, bouncing ideas off classmates after a lecture, or even just grabbing coffee with a study buddy. There might be online discussion forums, but they are not the same. The back-and-forth of conversation and the energy in the room are where the real learning happens for me. Plus, with online classes, it is so easy to get distracted. My phone is right there, and the fridge is calling my name. Forget about focusing for an hour straight! Please give me a proper classroom setting any day. Being physically present, surrounded by others learning the same thing, keeps me motivated and engaged. Online learning feels isolated. I may not be the biggest fan of early mornings, but I'd take a crowded lecture hall over a lonely screen any day.*

5. Discussion

The research data shows that students face different obstacles when learning accounting online, and that they develop strategies to succeed through self-discipline, time management, utilising technological resources, and communication systems. The research findings show that students need to develop better self-regulation skills when studying online because virtual learning lacks the structure of traditional classrooms. The student ASF5 identified Khan Academy, online accounting simulations, educational video channels, tutoring services, and forums as essential tools for studying accounting online.

The students communicated clearly and organised their work and online collaboration tools to manage group projects in a virtual environment. The student used shared documents, video conferencing, and project management platforms to achieve success in their group work. The students used university-provided time management tools and calendar applications to achieve success in their online courses. The student believes self-discipline is essential for students who want to succeed in online accounting education. Students must control their learning schedule because online education lacks direct instructor supervision.

The student ASM3 demonstrated self-discipline through proactive actions and self-regulation by stating that students must stay motivated and focused without direct supervision in online learning. The students manage their time effectively through scheduling, time reminders, and application use for organisation, coursework, and maintaining a balance in their personal lives. The student scheduled virtual meetings to solve problems and distributed work tasks through a system of accountability and feedback. The student demonstrated how to maintain personal responsibility while working with others through their method of time management and team communication. The student ASM2 faced home distractions while studying due to many responsibilities.

The student must develop strong time management skills to handle multiple online courses. Working on group projects on online platforms can be challenging for students. The students needed shared documents and video conferencing tools to coordinate their group work because online learning created continuous confusion. The online learning environment presents students with additional challenges that require them to develop stronger self-discipline and adaptability skills. The student ASM1 depends on online calendars and to-do lists for their studies and believes self-discipline remains essential for success. Students use video conferencing and shared documents to collaborate on group projects, and most instructors understand when students need to resubmit their work due to technical issues. The students' experiences show that digital tools function best when students develop self-regulatory abilities, demonstrating how discipline, time management, and digital skills work together.

The educational approach of Blended Learning (BL) combines classroom instruction with technology-based instruction. The hybrid learning system unites flexible online learning with the interactive benefits of traditional classroom settings. The research conducted by Finlay, Tinnion and Simpson (2022) shows students strongly favour blended learning methods because they value the real-time social interactions that these methods provide. The analysis explores communication and community development in online learning through student experiences, demonstrating the advantages and restrictions of virtual peer interaction. The student ASF4 stated that digital networking platforms, including LinkedIn and online forums, enabled him to connect with peers and instructors during his studies. The student recommends that students use online resources when seeking help from others and master time management and self-discipline. Students can establish professional relationships with peers and instructors through online learning platforms.

The student ASM5 stated that networking with peers and instructors becomes more challenging when learning online because students must put in additional effort. The student ASM5 stated that online programs provide discussion boards, virtual office hours, and career fairs. However, these resources do not match the benefits of

studying in one physical location with classmates. The student's experience shows that online learning offers opportunities for interaction, but these experiences lack the immediacy and naturalness of face-to-face communication.

Several existing studies support the idea that online learning success is strongly influenced by students' self-discipline, organisational skills, and proactive help-seeking behaviours. For example, prior research by Broadbent and Poon (2015) indicates that self-regulation and time management strategies are key predictors of academic success in online environments. Similarly, Kahu Picton and Nelson (2020) found that students who actively seek support from instructors and peers experience higher levels of engagement and persistence in digital learning contexts.

In addition, the observation from student ASF3 that online courses enhance networking opportunities is also supported in the literature. Martin, Sun and Westine (2020) indicate that online platforms can foster meaningful academic and professional networks through collaborative tools and discussion forums. Although some scholars argue that online learning may sometimes limit social interaction compared to face-to-face settings, the growing use of collaborative technologies suggests that digital spaces can strengthen peer-to-peer and student-to-instructor connections.

The online learning environment provides students with access to students from diverse backgrounds who become their professional contacts after graduation. The student ASM1 chose traditional classroom learning because they preferred the classroom environment, which provided social interaction and motivational support. The student ASM1 misses the classroom environment because they need to exchange ideas with classmates after lectures and participate in classroom discussions that create learning opportunities.

The student ASM1 experiences isolation when studying online because they miss the classroom environment where they can interact with classmates. The student ASM1 misses the classroom environment because they need to exchange ideas with classmates after lectures and experience the classroom discussions that create learning opportunities.

The study shows that students must develop self-discipline and time management skills, learn to use digital tools, and actively participate in communication networks to succeed in online accounting education. Students show that online learning platforms provide flexible access but require students to take full responsibility for their studies while strategically using available support resources. Students who structure their time effectively, stay motivated, and interact with peers and instructors through video conferencing, collaborative platforms, and online tutorials achieve better results in accounting education.

Online learning provides students with expanded networking possibilities, but the absence of face-to-face contact reduces the speed and emotional depth of classroom interactions. Educational institutions must establish robust technological systems while teaching students to self-regulate their learning, promote teamwork, and develop methods that improve intellectual and social learning outcomes to achieve maximum success in online accounting education.

The educational approach of Blended Learning (BL) combines classroom teaching with technology-based instruction. The hybrid learning system unites flexible online learning with the interactive benefits of traditional classroom settings. The research conducted by Finlay Tinnion and Simpson (2022) shows students strongly favour blended learning methods because they value the real-time social interactions that these methods provide.

Combining digital and direct teaching methods in blended learning frameworks creates an environment that supports diverse learning styles while improving academic outcomes through personalised content delivery and evaluation. The core characteristic of successful blended learning environments is the provision of personalised educational experiences, which lead to better student performance across all learning environments.

The foundation of both online and traditional educational environments depends on strong communication systems. Combining discussion forums with video conferencing and instant messaging services helps students stay connected and receive support through digital learning platforms. Combining technological tools with flexible scheduling allows students to balance schoolwork with outside responsibilities. Educational institutions can improve service delivery through online tutoring, virtual career development programs, and digital mental health services, demonstrating how technology can optimise educational support systems.

The success of blended learning ecosystems depends on establishing complete support systems, including technical help, academic guidance, and mental health resources for students. Developing interactive educational resources that combine multimedia content such as videos, quizzes, and simulations plays a vital role in maintaining student interest throughout their learning journey across different platforms. Combining formative assessments with timely feedback systems and strategic implementation methods yields better learning outcomes and greater student satisfaction in both digital and traditional educational environments. Based on the theoretical framework, literature review, and the study's findings, the researchers developed the model illustrated above to guide accounting learning (see Figure 1).

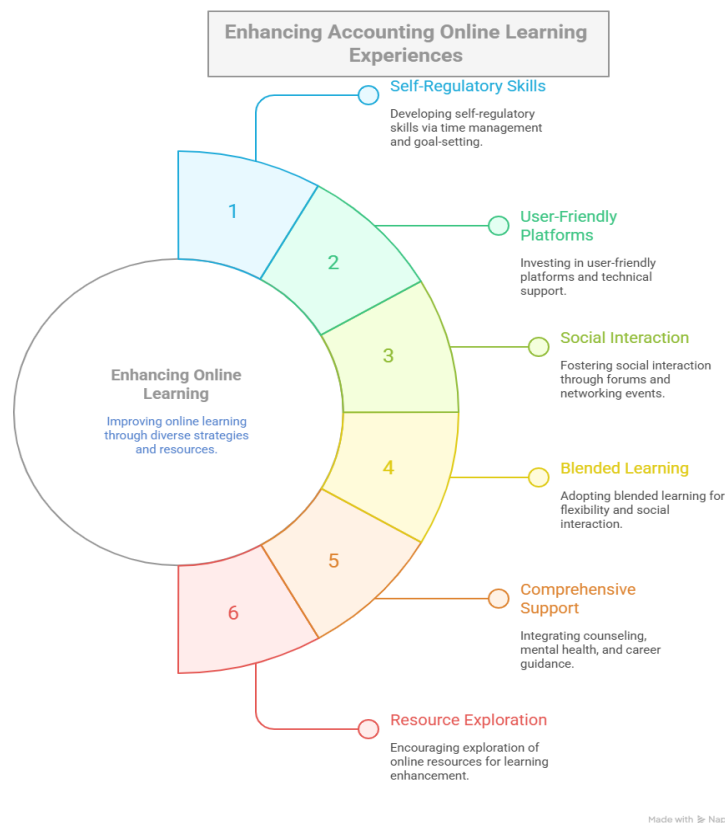


Figure 1. Accounting Learning Model

Source: Authors' Own

The diagram demonstrates multiple learning strategies that improve online accounting education by analysing student learning processes. Students gain learning autonomy through self-regulatory abilities, including time management and goal-setting, to direct their educational path. Combining user-friendly platforms with dependable technical support enables learners to access content without interruptions, promoting their full participation. The model promotes social interaction through online forums and networking events, creating opportunities for students to develop peer-to-peer learning skills and build community connections.

The model implements blended learning methods which unite virtual and classroom approaches to provide flexible learning opportunities and promote active student participation. The model demonstrates that students require complete support through counselling, mental health services, and career guidance to fulfil their educational requirements. Students who explore resources can use online tools and materials to enhance their understanding and maintain ongoing development. Combining these connected strategies creates an effective system to improve the quality, accessibility, and effectiveness of online accounting education.

Although the extant literature on blended learning affirms its successes, accounting education is viewed as a complex system consisting of interdependent cognitive (self-regulation) and non-cognitive constructs. The approach highlighted in this study of accounting education contributes to the literature by positioning student autonomy (self-control and time management) as the focal point in a blended learning environment that affects learning outcomes.

Most research on blended learning focuses on quantitative evidence from developed Western countries. The study, therefore, fills the gap by providing qualitative evidence from final-year accounting students in the developing-country context of South Africa. This presents a unique case of local qualitative evidence on infrastructure and digital challenges common in developing countries such as South Africa. Furthermore, they address a unique socio-educational context in higher education in South Africa, where the interviews were conducted after students had completed both online and classroom assessments.

6. Conclusion

The study provides essential insights into students' experiences with online learning and traditional classroom instruction in accounting subjects. The research shows that online learning provides flexible access to education with multiple networking options. However, students must develop strong self-discipline, practical time management skills, active participation in technology systems, and support resources. Students found online learning platforms, including Khan Academy and accounting simulations, Microsoft Teams, and educational video channels, suitable for their accounting education because they improved their understanding of concepts and supported group assignments. Students experienced three main difficulties while learning online: home distractions, limited social contact, and complex coordination of virtual group work. Online platforms enable students to connect with people outside their immediate peer group but lack the dynamic atmosphere and motivational energy of traditional classrooms. The research demonstrates that students must develop personal learning strategies and maintain discipline while receiving institutional support to succeed in online education. The study demonstrates that blended learning methods, which unite online and classroom instruction, create an optimal learning environment that boosts student engagement, academic performance, and social development.

7. Recommendations

- There is a need to establish workshops and training programs that teach students to develop essential self-regulatory abilities through time management, goal-setting, and structured study routines for successful online learning.
- Universities need to maintain their investment in user-friendly online platforms, accessible technical support, and learning tools that enable students to work independently and collaborate with their peers.
- The institutions need to establish discussion forums, virtual office hours, mentorship programs, and online networking events to help students overcome the social isolation of online learning through peer-to-peer and student-instructor interactions.
- The blended learning approach, which combines online resources with face-to-face instruction, should be adopted because students want both flexibility and social interaction in their learning experience.
- Online programs must integrate academic counselling with mental health resources, tutoring, and career guidance to support students' holistic development while reducing stress and boosting motivation. Provide workshops and training on time management, goal setting, and the effective use of digital tools.
- Encourage students to explore a range of online resources to complement traditional learning.

Limitations of the study

The study encountered several limitations. Firstly, the sample consisted solely of final-year Accounting students. Although the qualitative nature of the study afforded rich insights into students' experiences, the small sample size and the fact that students were selected from only one institution are limitations of the study. Therefore, the study is not generalisable to other accounting students. The Accounting Learning Model derived from this study may therefore require modifications or adaptations to account for differences in institutions, technology, and students that may exist in other contexts in South Africa and internationally.

Secondly, this study relied only on qualitative data derived from narrative and semi-structured interviews with students. Any bias arising from recall, interpretation, and social desirability cannot be discounted. The findings herein have not been triangulated from the perspectives of lecturers, LMS data, or student academic achievement, and we advocate that future research should consider a mixed-methods approach or a longitudinal study across different HE institutions to validate the findings.

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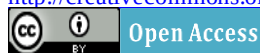
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COUNTERING LAND FRAUD THROUGH DIGITAL CONVEYANCING REFORMS: INSIGHTS FROM KENYA'S ARDHISASA FOR ZIMBABWE***Munashe Matambo***University of South Africa, Preller Street, Muckleneuk Ridge Pretoria, South Africa**E-mail: matamm@unisa.ac.za**Received 15 November 2025; accepted 10 February 2026; published 30 March 2026*

Abstract. This study examines Zimbabwe's Deeds Registries Regulations, Statutory Instrument 76 of 2025 as a legislative foundation for mitigating syndicated land fraud through strategic adoption of Kenya's Ardhisasa digital governance model. Employing qualitative documentary analysis of Zimbabwean litigation trends (*Zavazava*, *Mutumbuka*, *Chirimuta*, *Mariko*) and regulatory frameworks within the e-governance paradigm, the research identifies Sections 40–44's mandate for title validation and blockchain-backed securitised deeds as pivotal yet reveals critical gaps in biometric verification and automated compliance that perpetuate impersonation and document tampering risks. Consequently, the paper proposes institutional recalibration beyond digitisation: (1) integrating Kenya's stakeholder-centric "phygital" hybrid systems during Zimbabwe's 24-month validation phase; (2) embedding real-time identity cross-checks; and (3) implementing immutable audit trails to fulfil Section 90 of the Deeds Registries Act. These recommendations reconfigure the Deeds Registry as a guarantor of constitutional property rights guaranteed in Section 71(1) of the Constitution of Zimbabwe, 2013. The study contributes to debates on counteracting deed fraud in Africa.

Keywords: Syndicated deeds fraud; Zimbabwe; Kenya Ardhisasa; e-governance; securitised deeds; phygital systems; blockchain; geospatial technologies

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JEL Classifications: K11**Additional disciplines** law**1. Introduction**

The constitutional guarantee of property rights under Section 71(1) of the Constitution of Zimbabwe, 2013 establishes land ownership as a fundamental legal entitlement, with the Deeds Registry serving as the institutional custodian of title security. In principle, registered ownership should confer indefeasibility of title, ensuring that *bona fide* proprietors are insulated from adverse claims a foundational tenet of property law that underpins economic transactions, credit markets, and urban development (Mhishi, 2005). Yet, the systemic erosion of institutional integrity within Zimbabwe's Deeds Registry over the past two decades has precipitated a crisis of legal certainty, undermining both public trust and the efficacy of property governance. A syndicated network of actors including deeds officials, conveyancers, real estate agents, and even officials in the registrar of births and deaths office has exploited procedural vulnerabilities to orchestrate fraudulent property transfers, often through the fabrication of identity documents and the impersonation of legitimate owners. In the case of *Zavazava* and *Zavazava v Tendere and Ors* HH 749-15 Justice Mathonsi argued that: "It would appear that conveyancing laws in this country are not foolproof because fraudsters continue to exploit the weaknesses in the procedure for

* The research leading to these results has received funding from the University of South Africa

registration of transfers to defraud innocent property seekers. The leakages in the system have meant that cases of unlawful transfers of immovable property continue to reach the courts with alarming frequency. For how long will these fraudsters, who strut among communities, continue to hold sway, to make a mockery of transfer rules to milk unsuspecting home seekers dry in order to make a dishonest living? These shameless individuals bring the whole process of private ownership of immovable property and registration of title to disrepute. There is a pressing need for reforms to be introduced in conveyancing rules in order, not only to modernise the system, but also to render the system foolproof hopefully protect property owners”.

Against this backdrop, Kenya’s blockchain-based Ardhisasa land management platform emerges as a pivotal African model for digital governance reform. Ardhisasa demonstrates how integrated biometric verification, immutable audit trails, and automated compliance can disrupt syndicated fraud networks by enhancing transparency and closing procedural vulnerabilities exploited in Zimbabwean cases such as *Chirimuta v Action Property Sales HC 871/05* and the Mutumbuka case. Framed within the e-governance paradigm, this qualitative desktop study interrogates: (1) How can Zimbabwe’s Deeds Registry leverage Kenya’s Ardhisasa experience to mitigate syndicated fraud and restore institutional integrity? (2) What institutional recalibration is essential for implementing Section 90 of Zimbabwe’s Deeds Registries Act [Chapter 20:05] beyond mere technical digitalisation? The paper argues that Ardhisasa’s success lies not just in technology but in its stakeholder-sensitive “phygital” (physical-digital hybrid) rollout and accountability reconfiguration offering Zimbabwe a blueprint for transforming its registry from a vulnerability point into a guarantor of constitutional property rights. Subsequent sections analyse Zimbabwe’s fraud pathology, distil actionable lessons from Kenya’s model, and propose context-specific implementation pathways.

2. Theoretical framework

The e-governance paradigm provides the essential theoretical scaffolding for diagnosing Zimbabwe’s deeds fraud crisis and conceptualising e-conveyancing as institutional transformation. Grounded in public administration scholarship, this paradigm transcends technological determinism by conceptualising digital innovation as a process restoring the state’s capacity to deliver property rights through interdependent dimensions of transparency, interoperability, and accountability reconfiguration (Dunleavy et al., 2006). The framework addresses the syndicated fraud pathologies subsequently analysed by positioning e-conveyancing as institutional triage rather than mere technical modernisation (Nagel, 2025). E-governance’s transparency-through-technology dimension confronts custodial document manipulation (exemplified later in the Mutumbuka case) by establishing immutable audit trails and real-time visibility (Khan, Krishan & Dhir, 2021). Digital platforms such as Ardhisasa’s blockchain-secured platform delivers streamlined access to land records, enhanced transparency, tamper-proof security, reduced fraud and corruption, transactional efficiency, and data-driven planning nationwide (Saari, Vimpari & Junnila, 2022). Furthermore, such systems directly counter the physical deed extraction and re-registration fraud (illustrated in the Mutumbuka case discussed later. Simultaneously, the institutional interoperability pillar addresses impersonation fraud (typified in the Chirimuta case analysis) through biometric cross-verification between agencies. South Africa’s DeedsWeb implementation shows how integrating deeds registries with national identity systems closes authentication gaps by enabling real-time ID validation directly mitigating risks from counterfeit documentation analysed in subsequent cases (Napier et al., 2020). Critically, the paradigm’s stakeholder accountability reconfiguration dimension targets procedural subversion (evident in the Zavazava case) by automating compliance checks and redistributing oversight. Digital mandate verification systems, as implemented in Australia’s PEXA platform, eliminate conveyancer discretion in initiating transfers without owner authorisation. This reconfiguration disrupts collusive networks by reducing discretionary decision points where corruption incubates (PEXA, 2025). Ultimately, the paradigm repositions Section 90 of Zimbabwe’s Deeds Registries Act [Chapter 20:05] from an administrative provision to legal imperative a lever for institutional triage that recalibrates the registry as fiduciary custodian of the titlary social contract.

3. Literature Review

The pervasive challenge of land fraud in sub-Saharan Africa has drawn considerable scholarly attention, particularly in the context of weak institutional frameworks and rapid urbanisation. This section synthesises existing research on syndicated land fraud, e-governance reforms in land administration, and innovative digital models like Kenya's Ardhisasa, while drawing comparative insights relevant to Zimbabwe's ongoing regulatory shifts under Statutory Instrument 76 of 2025. By examining theoretical underpinnings and empirical case studies, the review identifies gaps in current practices and highlights transferable strategies for enhancing title security and institutional integrity. The discussion is organised around key themes: the etiology of land fraud in Zimbabwe and Kenya, the role of e-governance in transforming land registries, the specifics of Ardhisasa as a benchmark, blockchain applications in African contexts, and policy lessons for Zimbabwe's digital transition.

The Etiology of Land Fraud in Zimbabwe and Kenya

Land fraud in sub-Saharan Africa often manifests as a syndicated phenomenon, involving collusion among public officials, private actors, and intermediaries who exploit procedural loopholes in land registries (Wicomb, 2024). In Zimbabwe, urban land corruption has been characterised as a multifaceted issue intertwined with political patronage and economic desperation (Chiweshe et al., 2025). For instance, Matamanda et al. (2025) research on Harare's land governance reveals how politicians and connected elites abuse power to allocate land as a tool for maintaining influence, leading to widespread irregularities in title transfers and allocations. This is echoed in broader comparative studies across Kenya, Ethiopia, Nigeria, and Namibia, which demonstrate that corruption levels vary by governance structures but commonly involve pentapartite actors i.e. politicians, bureaucrats, private developers, traditional leaders, and citizens each leveraging land for personal gain. Such dynamics not only erode public trust but also perpetuate gender disparities, as women in Harare face amplified barriers due to intersectional biases in corrupt land dealings (Barnes, 2024).

In Kenya, land-related crimes are similarly rampant, driven by factors like greed, land grabbing, and delays in title issuance. A baseline survey highlights that over 47% of respondents attribute these crimes to landowner avarice, while 33% point to systemic land grabbing, often facilitated by forged documents and impersonation (Mbaye, 2024). Earlier situational analyses underscore the prevalence of fraudulent titles, where counterfeit deeds circulate due to lax verification processes at the Ministry of Lands. These issues are compounded by perjury in court proceedings, where false testimonies enable fraudsters to legitimize illegal transfers, suggesting that stricter enforcement of perjury laws could serve as a deterrent (Transparency International Kenya, 2025). Comparatively, both countries exhibit patterns of impersonation and document tampering, but Zimbabwe's cases often involve insider manipulation within the Deeds Registry, as seen in high-profile litigations like Mutumbuka, where physical deeds were extracted and altered. This contrasts with Kenya's more decentralised fraud networks, which thrive on bureaucratic delays and informal settlements (Mbaye, 2024).

The United Nations Economic Commission for Europe (2021) argues that these fraud modalities stem from colonial legacies of fragmented land tenure systems, where formal registries coexist uneasily with customary rights. In Zimbabwe, the post-independence land reform program exacerbated vulnerabilities, as rapid reallocations without robust digital safeguards invited exploitation. Similarly, Kenya's historical land injustices, rooted in colonial disposessions, have fueled disputes that digital interventions aim to resolve. Data mining approaches to detecting fraud patterns, such as those analysing transaction anomalies, offer promising tools for identifying syndicated schemes, but their adoption remains limited in resource-constrained African registries. Overall, the literature emphasizes that land fraud is not merely a legal issue but a governance failure, where weak accountability mechanisms allow predatory networks to flourish, undermining economic development and social stability.

The Role of E-Governance in Transforming Land Administration in Africa

E-governance has emerged as a critical paradigm for reforming land administration, shifting from paper-based systems to digital platforms that enhance transparency, efficiency, and inclusivity (Cheng & Li, 2024). In Africa, e-governance adoption is influenced by economic, political, and infrastructural factors, with studies showing that higher ICT access correlates with advanced digital services, though political stability plays a pivotal role in implementation success. Early initiatives, dating back to the 1990s, focused on basic digitization, but recent efforts integrate advanced technologies to combat corruption. For land sectors specifically, digital administration is positioned as a tool to curb bribery and fraud by automating processes and creating audit trails (Olumekor et al., 2025).

Transforming land administration through e-government involves overcoming legal, technical, and cultural barriers, as incorporating digital tools requires extensive regulatory overhauls (Rarhoui, 2024). In West Africa, analyses of 15 countries by Akpan-Obong et al. (2023) reveal that while e-governance promises better service delivery, offline challenges like low digital literacy and infrastructure gaps hinder equitable access. Kenya's experiences illustrate this, where e-government milestones since 2004 have digitised transactions in the Ministry of Lands, reducing physical visits and enabling online permits. Universities have played a role in capacity building, partnering with governments to develop governance systems that address these hurdles (Parliament of Kenya, 2019).

Broader African contexts highlight how ICT utilisation in land management can boost revenue and reduce bureaucracy (Danda & Wema, 2024). For example, online services for building permits and registrations streamline operations, though adoption varies by region. The African Peer Review Mechanism frames e-governance as leveraging ICT for transparent public administration, emphasising mobile apps and digital platforms to democratize access (Herbert & Gruzd, 2008). However, Broome (2015) warns against technological determinism, arguing that e-governance must be embedded in broader institutional reforms to avoid replicating existing inequalities. In Zimbabwe, the push toward digital deeds under SI 76/2025 aligns with this, but Zinyama (2012) cautions that without stakeholder engagement, such transitions risk alienating vulnerable groups.

The Ardhisasa Model: A Benchmark for Digital Land Management in Kenya

Kenya's Ardhisasa platform represents a flagship example of e-governance in action, integrating blockchain and geospatial technologies to overhaul land records (Wabwire & Njoki, 2023). Launched in 2021, Ardhisasa meaning "land now" in Swahili provides a unified digital registry for property ownership, registrations, and transfers, addressing historical fraud through tamper-proof records and real-time verification. Studies on its implementation analyze stakeholder impacts within the Ministry of Lands, noting improvements in efficiency but also challenges like resistance from traditional bureaucrats (Okembo et al., 2024).

The platform's interoperability framework, aligned with the Land Administration Domain Model (LADM), facilitates data exchange across agencies, reducing silos that enable fraud. A Kenyan LADM profile adapts international standards to local needs, incorporating customary tenure and urban-rural divides. Media coverage underscores its role in easing access to land information, with print outlets highlighting how it minimizes disputes by offering verifiable ownership details. Infrastructurally, Ardhisasa's development involved liminal processes bridging old and new systems through diverse interventions like digitisation drives and user training (Hoefsloot & Gateri, 2024).

Efficiency gains are evident the system fast-tracks searches, valuations, and title issuances, slashing backlogs that once plagued manual processes (Chesang, Masese & Rugiri, 2025). Modernisation efforts, including process optimization, have enhanced performance, allowing online transactions for registrations and payments. Within the National Land Information Management System (NLIMS), Ardhisasa supports data-driven planning, preventing unplanned settlements and promoting sustainable use. Yet, challenges persist, such as digital divides in rural

areas, where low internet penetration limits accessibility (Kuria & Mwikya, 2024). Transparency International Kenya (2021) notes that while Ardhisa curtails corruption opportunities, full success depends on continuous updates and public education. This "phygital" hybrid blending physical and digital elements offers a nuanced model, where biometric verification and audit trails directly counter impersonation and tampering seen in Zimbabwean cases.

Blockchain and Emerging Technologies in African Land Registries

Blockchain technology has gained traction as a secure backbone for land registries, promising immutable records that deter fraud (Chesang et al 2025). In Africa, initiatives such as Ghana's Bitland use blockchain to register untitled lands, partnering with local communities to build trust (Mhlanga, 2023). Broader applications span Bermuda to Rwanda, where decentralised ledgers help lift people out of poverty by formalising ownership (Hughes et al., 2022). Conceptual frameworks for blockchain land registration emphasise roadmaps from conceptualization to deployment, validating systems against real-world fraud scenarios. In Ghana, stool land acquisition frameworks enable objections via blockchain, reducing disputes in customary systems (Mhlanga, 2023). South Africa's explorations require policy amendments to integrate blockchain legally, highlighting the need for regulatory alignment (Amadi-Echundu, 2021). However, offline challenges such as power outages and digital literacy undermine electronic registries, as seen in piecemeal African digitisation efforts (Rokgoale, Bag & Pretorius, 2024). Blockchain's transparency could recalibrate Zimbabwe's Deeds Registry, but integration demands addressing these practicalities.

Comparative Insights and Lessons for Zimbabwe's Digital Transition

Zimbabwe's shift to digital deeds under SI 76/2025 draws lessons from regional models, emphasising risk management and confidence-building in electronic systems. E-conveyancing challenges include transitioning from paper to digital, with solutions such as computerised databases to streamline registrations. The 24-month validation phase risks invalidating unverified titles, urging proactive compliance to secure properties. This enhances integrity across land categories but requires public awareness to avoid rushes. Comparative studies stress motivating citizen compliance and sustaining funding. Zimbabwe's electronic registration involves hybrid systems, blending manual and digital for rural planning. Databases like Alpha and Oracle illustrate phased digitisation, but full adoption needs addressing gaps in infrastructure. Law firms need to guide holders through the process, of modernisation to prevent fraud. Blockchain's practicality for Zimbabwe lies in protecting rights via decentralized tools. In synthesis, literature reveals that while digital systems like Ardhisa offer robust fraud mitigation, success hinges on contextual adaptation, stakeholder buy-in and addressing digital divides. For Zimbabwe, this means going beyond SI 76/2025's mandates to integrate biometrics and audit trails, filling gaps in biometric verification to fulfill constitutional property rights.

4. Methodology

This study adopts an interpretivist epistemological framework, grounded in the ontological premise that institutional transformations in land governance are shaped by contextually embedded social practices and inter-subjective meanings rather than objective, detached realities. This paradigmatic stance aligns with the need to explore the complex interplay between Zimbabwe's syndicated land fraud crisis and the potential of Kenya's Ardhisa platform as a model for reform. A qualitative approach is employed, emphasising documentary analysis as the primary method to engage with textual artifacts across both jurisdictions. This method facilitates a hermeneutic exploration of legislative, judicial, and technical documents, enabling a nuanced understanding of fraud pathologies and digital governance solutions. The choice of qualitative methodology reflects the study's aim to interpret institutional dynamics and propose context-specific recommendations rather than quantify fraud occurrences, which would be less suited to capturing the socio-legal intricacies involved (Creswell, 2014).

Data collection involved purposive sampling of diverse documentary sources to ensure relevance and evidentiary rigor. Key materials included Zimbabwe's legislative instruments, such as the Constitution of Zimbabwe, 2013 and the Deeds Registries Act [Chapter 20:05], alongside Kenya's Land Registration Act, No.3 of 2012. Judicial decisions, such as *Zavazava v Tendere & Ors HH 749-15*, were analysed to elucidate fraud mechanics and judicial responses. Executive publications, including Ardhisa's technical specifications and Zimbabwe's Statutory Instrument 76 of 2025, provided insights into digital implementation frameworks. Parliamentary proceedings from both nations, scholarly critiques on African e-governance, and professional advisories from legal and surveying bodies were also curated. All sources were retrieved from authenticated platforms, including governmental portals, legal databases such as ZimLii and Kenya Law Review, and academic repositories, ensuring credibility and traceability. The analytical process followed Boyatzis' (1998) thematic analysis framework, beginning with inductive coding to identify emergent patterns such as "custodial vulnerability," "biometric remediation," and "procedural subversion" across the documentary corpus. These codes were deductively mapped onto the e-governance paradigm's core dimensions transparency, interoperability, and accountability reconfiguration as articulated by Dunleavy et al. (2006).

Limitations of the methodology include its reliance on textual sources, which may not fully capture lived institutional dynamics or stakeholder experiences. However, triangulation across diverse authoritative documents mitigates this by providing a comprehensive view of governance challenges and solutions. The methodology's strength lies in its ability to synthesize legal, technical, and scholarly perspectives, offering actionable insights for Zimbabwe's digital transition under SI 76/2025. By aligning with e-governance scholarship, the study contributes to debates on institutional recalibration in African land registries (Bannister & Connolly, 2014).

5. Research Findings

The author provides a summarized view of types of revealed land fraud, which might serve as a warning to readers from both, considered and other countries (see Table 1 below).

Table 1. Types of land fraud in Zimbabwe's Conveyancing system

Types of Fraud	Description	Common Method/Vector
Impersonation Fraud	Fraudsters pose as legitimate property owners using forged or stolen identity documents to execute unauthorised sales or transfers	Fake national identity documents, death certificates or power of attorney
Custodial document manipulation	Insiders within the deeds registry physically extract, alter or replace title deeds to facilitate fraudulent transfer.	Collusion with registry officials, removal or tampering of physical deed records.
Procedural subversion in transfers	Unauthorised transfers conducted by conveyancers or estate agents without the knowledge or consent of the rightful owners	Abuse of professional access and failure to verify owner authorisation
Fraudulent sales or deceased estates	Property of deceased persons is sold by imposters or unscrupulous agents before lawful succession is concluded.	Exploitation of delays in estate administration, false affidavits and signatures
Syndicated insider collusion	Organised networks involving deeds officials, lawyers, real estate agents, and bureaucrats collaborate to fabricate transactions	Multiple actor coordination, bribery, and manipulation of transaction documents
Fraud through forged court orders	Use of fraudulent court orders or letters of administration to legitimise illegal transfers	Fabricated judicial or administrative documents
Land highjacking & unauthorised developments	Fraudsters sell land that they do not own often to multiple buyers, sometimes with fabricated planning permits	False advertisements, fake title deeds, and corrupt local planning officials

Source: Author's own systematization

The qualitative documentary analysis undertaken in this study uncovers a multifaceted landscape of land governance challenges in Zimbabwe, juxtaposed against the transformative potential demonstrated by Kenya's Ardhisa platform. By synthesising patterns from Zimbabwean court litigations, such as *Zavazava v Tendere & Ors HH 749-15*, *Chirimuta v Action Property Sales HC 871/05*, Mutumbuka's high-profile case, and *Mariko v*

Stohill Investments HH 279-23, with implementation insights from Ardhisa's rollout and broader theoretical perspectives on e-governance, the findings highlight how digital interventions can disrupt entrenched fraud networks. Central to this analysis are three e-governance dimensions: enhanced transparency, institutional interoperability, and algorithmic accountability. These elements not only address the systemic vulnerabilities exposed in Zimbabwe's deeds registry but also offer a blueprint for recalibrating the institution under Statutory Instrument 76 of 2025. The synthesis reveals that while Zimbabwe's fraud pathologies stem from manual processes prone to manipulation, Ardhisa's blockchain-backed system has yielded measurable reductions in disputes and inefficiencies, underscoring the need for Zimbabwe to adopt hybrid "phygital" strategies during its 24-month validation phase.

Zimbabwe's litigation trends illustrate a persistent crisis of syndicated fraud, where impersonation, unauthorised transfers, and insider collusion erode property rights. In *Zavazava v Tendere & Ors HH 749-15*, for instance, the court dealt with a fraudulent transfer orchestrated through estate agents Thermo-Dynamics Real Estate, who advertised and sold the property without the owners' consent, leading to development by innocent third parties. Justice Mathonsi highlighted the "alarming frequency" of such cases, attributing them to procedural weaknesses in conveyancing that allow fraudsters to exploit gaps in verification. Similarly, the *Chirimuta v Action Property Sales HC 871/05* case exposed impersonation vulnerabilities, where imposters used fabricated IDs to sell a vacant property, defrauding buyers after substantial deposits were paid. The Mutumbuka case further exemplifies custodial betrayal. Deeds Office supervisor Lynna Mlambo extracted physical deeds, enabling forgery and a distress sale at US\$140,000 against a US\$600,000 valuation, costing the victim over US\$131,000 in recovery efforts. A recent resolution in November 2024 saw Mutumbuka regain his property, but it exposed deep-rooted networks involving insiders (*The Herald 19/11/2024*). *Mariko v Stohill Investments HH 279-23* involved estate agents relying on superficial deed searches, allowing an imposter to sell property of a deceased owner, defrauding buyers of US\$50,000. These cases collectively demonstrate interconnected modalities impersonation, procedural subversion, and document tampering that generate market paralysis, particularly affecting diaspora owners and undermining credit security.

In contrast, Kenya's Ardhisa integrates blockchain and digital tools to mitigate similar issues. Implementation data from 2024-2025 indicates a shift toward tamper-proof records, with the platform facilitating online transactions like transfers and searches, reducing physical interactions. By January 2025, Kenya transitioned from old mutation forms to digital ones via Ardhisa, enhancing accountability and curbing fraud risks. An assessment of the Land Registration (Electronic Transactions) Regulations 2020 reveals that biometric verification and electronic signatures have curtailed forgery, addressing patterns akin to Zimbabwe's impersonation cases (Kenya Law, 2022). Theoretical insights from e-governance scholarship, such as those emphasizing transparency-through-technology (Khan, Krishan & Dhir, 2021), align with Ardhisa's immutable audit trails, which prevent the kind of document extraction seen in Mutumbuka.

Delving into the first dimension, enhanced transparency emerges as a cornerstone for disrupting fraud. In Zimbabwe, opaque manual registries enable collusion, as evidenced by the *Zavazava* case where transfers occurred without owner mandate, violating *nemo dat quod non habet*. Litigants often discover fraud post-transaction, leading to frequent court interventions. Ardhisa counters this by establishing a single authoritative source for land records, allowing real-time verification and eliminating uncertainty. Implementation reports from 2024 note that digitised records have minimised disputes, with users accessing ownership details 24/7, reducing bribery opportunities. For example, blockchain ensures tamper-proof security, making alterations "virtually impossible," as per 2025 evaluations. This transparency has boosted efficiency, with transaction times slashed and corruption curtailed, supporting national planning through accurate data. Theoretically, e-governance paradigms position transparency as restoring state capacity (Dunleavy et al., 2006), a view echoed in African contexts where digital platforms like Ardhisa foster trust by democratising access. For Zimbabwe, integrating such features

during SI 76/2025's validation could validate titles transparently, preventing the "procedural minimalism" in Mariko where agents skipped identity checks.

The second dimension, institutional interoperability, addresses authentication gaps exploited in Zimbabwean fraud. In Chirimuta, manual verification failed to detect counterfeit IDs during transaction intervals, allowing superficial legitimacy. Mutumbuka's insider extraction highlights siloed agencies, where deeds offices lack cross-checks with identity systems. Ardhisasa's interoperability integrates biometric cross-verification across ministries, enabling real-time ID validation and closing gaps similar to South Africa's DeedsWeb (Napier et al., 2020). Data from Kenya's 2025 assessments show reduced impersonation through electronic tools, with the platform supervising stages to detect anomalies. Challenges persist, such as rural digital divides, but hybrid models mitigate this by maintaining manual backups. Theoretical frameworks underscore interoperability as countering fragmentation (Nagel, 2025), with insights from African research advocating collaborative model. In developing countries, this involves overcoming infrastructure barriers, as seen in Malaysia's e-Tanah, which integrated processes to boost revenue by 47% in one year. Zimbabwe could embed real-time checks in its deeds system, linking with births and deaths registries to prevent cases like Mariko's deceased owner impersonation.

Finally, algorithmic accountability reconfigures oversight to target procedural subversion. In Zavazava, conveyancers executed transfers without authorization, incubating corruption at discretionary points. Ardhisasa automates compliance, redistributing accountability via audit trails and mandate verification, akin to Australia's PEXA (PEXA, 2025). 2024-2025 data indicate curtailed bribe demands and faster processing, though user difficulties in tracking require improved customer support. Theoretically, this dimension transforms registries into fiduciaries (Bannister & Connolly, 2014), with African studies emphasizing frameworks for socio-economic context. Challenges like hacking risks necessitate robust cybersecurity, but benefits include sustainable land use planning. These findings affirm Ardhisasa's role in institutional triage, offering Zimbabwe pathways to fulfill Section 90 of the Deeds Registries Act. By adopting phygital systems, Zimbabwe can mitigate fraud, restore trust, and uphold constitutional rights.

6. Conclusions

This study has systematically examined the entrenched problem of syndicated land fraud in Zimbabwe, as exposed through high-profile litigation cases such as *Zavazava v Tendere & Ors HH 749-15*, *Chirimuta v Action Property Sales HC 871/05*, *Mutumbuka*, and *Mariko v Stohill Investments HH 279-23*, alongside recent fraud incidents reported in 2025. These cases underscore a crisis of institutional integrity within Zimbabwe's Deeds Registry, where impersonation, procedural subversion, and custodial document manipulation have undermined the constitutional guarantee of property rights under Section 71(1) of the Constitution of Zimbabwe, 2013. By drawing on Kenya's Ardhisasa platform as a comparative model, the research demonstrates how e-governance principles transparency, interoperability, and accountability offer a viable pathway to recalibrate the Deeds Registry into a robust guarantor of title security. Ardhisasa's blockchain-backed system, fully transitioned to digital mutation forms by March 2025 and expanded to counties like Isiolo by July 2025, has reduced fraud through tamper-proof records, real-time verification, and stakeholder-inclusive rollout, providing actionable lessons for Zimbabwe's ongoing reforms under Statutory Instrument 76 of 2025 (SI 76/2025).

The findings reveal that Zimbabwe's fraud pathologies thrive on manual processes vulnerable to insider collusion and lax verification, as seen in the Mutumbuka case's US\$131,000 recovery costs and the US\$419,000 scam affecting 16 home seekers in September 2025. In contrast, Ardhisasa's integration of biometric authentication, immutable audit trails, and automated compliance protocols has curtailed similar risks in Kenya, fostering trust and efficiency. The policy recommendations implementing a stakeholder-centric "phygital" hybrid system, embedding real-time identity cross-checks, and establishing blockchain-based audit trails directly address these

vulnerabilities. These strategies align with Section 90 of the Deeds Registries Act, transforming the registry from a site of exploitation into a fiduciary institution that upholds the titlary social contract.

However, challenges remain, including Zimbabwe's digital divide, low public awareness, and resource constraints. The 24-month validation deadline under SI 76/2025 risks invalidating unverified deeds, necessitating urgent action through mobile validation units, public campaigns, and inter-agency collaboration. Drawing from Ardhisa's success, which saw over 2,200 records digitized in Isiolo alone, Zimbabwe can leverage partnerships and phased implementation to ensure inclusivity, particularly for rural and diaspora owners. The study contributes to African e-governance debates by highlighting the need for context-specific digital reforms that transcend technological fixes, emphasizing stakeholder engagement and institutional accountability.

In conclusion, Zimbabwe stands at a pivotal juncture to restore public trust and economic stability by adopting Ardhisa's proven mechanisms. By implementing the proposed reforms within the SI 76/2025 framework, the Deeds Registry can safeguard property rights, reduce the estimated 2,000 plus annual fraud cases, and support sustainable land governance. Future research should explore the long-term socio-economic impacts of these digital transitions, particularly on marginalized groups, to ensure equitable access to secure land ownership.

7. Recommendations

Drawing from the analysis of Zimbabwe's persistent land fraud challenges, alongside the proven efficacy of Kenya's Ardhisa platform this section outlines a set of comprehensive policy recommendations. These proposals aim to recalibrate Zimbabwe's Deeds Registry under Statutory Instrument 76 of 2025 (SI 76/2025), transforming it from a site of vulnerability into a robust guardian of property rights as enshrined in Section 71(1) of the Constitution of Zimbabwe, 2013. The recommendations build on the e-governance paradigm's pillars of transparency, interoperability, and accountability, emphasizing a "phygital" hybrid approach that blends digital innovation with physical safeguards to address procedural gaps exposed in litigations such as *Zavazava v Tendere & Ors HH 749-15* and Mutumbuka's recovery in November 2024. They also incorporate lessons from Ardhisa's stakeholder-inclusive rollout, which has reduced fraud by providing tamper-proof records and real-time access, while adapting to Zimbabwe's context of urban-rural divides and diaspora ownership.

The overarching goal is to mitigate syndicated fraud characterised by impersonation, document tampering, and insider collusion through institutional reforms that extend beyond mere digitisation. As highlighted in the Deeds Registries Regulations, 2025, gazetted on July 18, 2025, the 24-month validation window for old title deeds presents a critical opportunity for implementation. Failure to act decisively risks perpetuating the "alarming frequency" of fraud noted by Justice Mathonsi, with recent reports indicating over 2,000 property fraud cases reported to the Zimbabwe Republic Police in 2024 alone. These recommendations are structured around three core strategies, supplemented by enabling measures for sustainability, with phased timelines, stakeholder roles, and monitoring mechanisms to ensure feasibility and impact.

Integrate Stakeholder-Centric "Phygital" Hybrid Systems During the 24-Month Validation Phase

Zimbabwe should prioritise the adoption of a hybrid physical-digital ("phygital") framework modeled on Ardhisa's successful deployment, which has onboarded counties like Isiolo by July 2025 through collaborative digitisation forums. This approach would involve maintaining physical deed submissions for validation while simultaneously building a digital registry, ensuring accessibility for rural and low-literacy populations who may lack reliable internet. Under SI 76/2025, Section 40 mandates validation of existing deeds, with non-compliance leading to invalidation after 24 months—a deadline that has sparked public concern, as seen in online discussions urging immediate action. To avoid chaos, the Deeds Registry should establish mobile validation units and pop-up centers in high-fraud areas like Harare and Bulawayo, like Ardhisa's county-level stakeholder engagements that digitized over 2,200 land records in Isiolo.

Key actions include: (a) Partnering with local governments and NGOs to conduct awareness campaigns, targeting diaspora communities via embassies and online portals, to encourage timely submissions; (b) Issuing digitized deeds with QR codes linking to a secure online database, allowing instant verification by buyers and lenders; and (c) Incorporating user feedback loops, as Ardhisa did through multi-stakeholder forums in Mombasa in July 2025, to refine the system and address teething issues like data entry errors. This hybrid model directly counters the procedural subversion in cases like the August 2025 Windmill land fraud scandal, where unauthorized sales by "land barons" exploited opaque processes. Phased implementation could begin with a six-month pilot in urban registries, scaling nationwide by mid-2026, with funding sourced from transaction fees and international donors like the World Bank, which has supported similar African digitization efforts.

Moreover, to enhance inclusivity, the policy should mandate multilingual interfaces (English, Shona, Ndebele) and offline modes for initial validations, drawing from Ardhisa's emphasis on reducing physical visits while accommodating diverse users. Expected outcomes include a 30-50% reduction in fraud disputes within two years, based on Kenya's post-Ardhisa metrics, and strengthened economic transactions by bolstering credit markets reliant on secure titles.

Embed Real-Time Identity Cross-Checks and Biometric Verification

A critical gap in Zimbabwe's current system is the absence of automated identity authentication, which perpetuates impersonation as seen in the *Chirimuta v Action Property Sales HC 871/05*. To address this, policymakers should integrate real-time cross-verification with national databases, including the Registrar of Births and Deaths and the Zimbabwe National Identity System, using biometric tools like fingerprints and facial recognition. Ardhisa's biometric integration, part of its 2025 expansions, has minimised forgery by enabling instant ID validation during transactions.

Implementation steps: (a) Amend Section 41-44 of SI 76/2025 to require biometric enrolment for all deed holders during validation, with data securely stored on a blockchain-backed platform to prevent tampering; (b) Develop API linkages between agencies, ensuring compliance with data protection laws under the Cyber and Data Protection Act [Chapter 12:07]; and (c) Train conveyancers and registry staff through mandatory certification programs, partnering with institutions like the University of Zimbabwe to build capacity. This mirrors Kenya's approach, where Ardhisa's interoperability with national IDs has curtailed bribe demands and sped up processes.

For diaspora owners, virtual verification via secure video links and e-signatures should be enabled, addressing vulnerabilities in cases like the August 2025 international scam targeting Zimbabwean women abroad. Budgetary allocations could include US\$5-10 million for initial tech infrastructure, offset by reduced litigation costs—estimated at millions annually from fraud cases. Monitoring via quarterly audits would track adoption rates, with penalties for non-compliant officials to deter insider collusion, as exposed in the July 2025 Supreme Court confirmation of a 10-year sentence for a former Harare estates manager.

Implement Immutable Audit Trails and Algorithmic Compliance Protocols

To fulfill Section 90 of the Deeds Registries Act, Zimbabwe must embed immutable audit trails using blockchain technology, ensuring every transaction is logged transparently and irreversibly. This directly tackles custodial manipulation, as in the Mutumbuka case and the July 2025 US\$320,000 land barons' fraud. Ardhisa's blockchain foundation, enhanced in 2025 updates, creates tamper-proof records that have significantly lowered corruption risks by providing a single authoritative source for land data.

Specific measures: (a) Roll out a centralized digital ledger for all deeds post-validation, with automated alerts for anomalies like duplicate registrations; (b) Automate compliance checks to eliminate discretionary decisions,

requiring algorithmic approval for transfers only after multi-factor verification; and (c) Establish an independent oversight body, comprising legal experts and civil society, to review audit logs and investigate irregularities. Inspired by Ardhisasa's data-driven planning tools, this could support national land use strategies, preventing unplanned settlements.

Timeline: Integrate within the first 12 months of SI 76/2025's enforcement, with pilot testing in fraud-hotspot registries. Costs could be mitigated through public-private partnerships, like Kenya's collaborations for Ardhisasa's county rollouts. Impact assessment via key performance indicators, such as reduced court caseloads, would validate effectiveness.

Enabling Measures: Public Awareness, Capacity Building, and Inter-Agency Collaboration

To sustain these reforms, complementary policies are essential. Launch nationwide education campaigns via media and community workshops to demystify the validation process, countering misinformation as seen in Reddit discussions on SI 76/2025. Invest in training for 500+ registry personnel by 2026, focusing on cybersecurity to prevent hacks. Foster inter-agency ties, including with the Zimbabwe Anti-Corruption Commission, to prosecute fraudsters swiftly, building on the July 2025 government moves to curb Deeds Office chicanery. Finally, allocate resources for ongoing evaluations, adjusting based on feedback to ensure equity.

These recommendations position Zimbabwe's Deeds Registry as a pillar of constitutional property rights, fostering economic stability and public trust. By adapting Ardhisasa's blueprint, Zimbabwe can disrupt fraud networks and pave the way for sustainable land governance.

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