Digital Divide and Pension Disbursement in Zambia: How ICT Constraints Affect Timely Access to Benefits

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ABSTRACT

Access to timely and equitable pension disbursement is a critical function of social protection systems. However, in Zambia, the growing reliance on digital platforms by the National Pension Scheme Authority (NAPSA), the largest public pension provider, has exposed and, in some cases, intensified long-standing disparities rooted in the digital divide. This review article investigates how Information and Communication Technology (ICT) constraints hinder pension benefit delivery, especially for older populations in rural and underserved communities.

Guided by Agency Theory, the Digital Divide Theory, and the Technology Acceptance Model (TAM), the study employs the SPAR-4-SLR protocol to conduct a structured literature review of peer-reviewed articles, policy reports, and grey literature published between 2012 and 2024. The analysis identified four interrelated themes: (1) infrastructural barriers such as poor internet coverage and power instability; (2) digital illiteracy among older pensioners; (3) cybersecurity and trust concerns that inhibit technology adoption; and (4) policy and institutional gaps impeding effective implementation of digital pension reforms.

While the adoption of ICT has significantly improved pension processing efficiency, it has also disadvantaged technologically challenged and digitally excluded pensioners. Agency Theory helps explain how information irregularities and weak accountability mechanisms between pension administrators (agents) and pensioners (principals) contribute to these disparities. The study concludes that bridging the digital divide requires broad-based interventions, such as expanding ICT infrastructure, rolling out digital literacy programmes for pensioners, adopting user-friendly platforms, and strengthening institutional capacity. These strategies are critical for ensuring inclusive, timely, and equitable pension access in a digital era.

KEYWORDS: *Digital Divide, ICT Constraints, Pension Disbursement, NAPSA, Social Protection, Zambia*

Introduction

Access to timely and efficient pension disbursement remains a critical aspect of social protection systems globally (Hachimena, 2022). However, disparities in Information and Communication Technology (ICT) access, commonly referred to as the digital divide, continue to shape how beneficiaries interact with these systems. As governments increasingly adopt digital platforms for service delivery, pensioners without reliable digital access face exclusion and delays in receiving vital income (Simonovits, 2021). In Zambia, this challenge is particularly evident within the National Pension Scheme Authority (NAPSA), where ICT constraints have the potential to undermine the objective of providing prompt and equitable benefit disbursements to all eligible retirees (NAPSA, 2023a).

Globally, the digital divide has emerged as a pressing policy issue in the administration of social protection systems. In high-income countries, pension administrations have made significant strides in automating processes and offering online self-service portals (Adeabah, Asongu, and Andoh (2020). However, studies show that older populations often struggle with digital literacy, making human-centered digital transformation essential (OECD, 2021). Even in technologically advanced contexts, failure to integrate digital inclusion strategies has resulted in unequal service outcomes, especially for rural and elderly beneficiaries (Acevedo and Székely, 2021).

In the African context, the challenge is more acute. According to the International Telecommunication Union (ITU), digital exclusion remains a significant barrier to access for older adults and rural populations across Africa. The Union report that, only 38% of Africa's population accessed

the internet in 2024, compared to a global average of 68%. These gaps are largely driven by infrastructural limitations, high costs of digital services, and widespread lack of digital literacy. Such challenges undermine the effectiveness of digital pension disbursement systems, particularly among older populations who are already at risk of financial and social exclusion (International Telecommunication Union, 2024).

Several African countries, including Nigeria, Kenya, and Ghana, have initiated efforts to digitise their pension systems. However, the success of these initiatives has been constrained by persistent challenges related to affordability, inadequate infrastructure, and limited digital literacy among the target populations (Ezeuko, 2019; Kariuki & Ngugi, 2014). As a result, a substantial proportion of pensioners in these countries continue to depend on manual administrative procedures, characterised by long queues and frequent delays in benefit disbursement. These inefficiencies not only undermine the reliability of pension delivery but also erode the dignity and financial security of retirees (Abdulazeez, 2023; Alemu, 2015; Obiri-Yeboah and Hanson, 2014).

Within Zambia, the National Pension Scheme Authority (NAPSA) has made notable strides in digitalising pension access through the introduction of its eNAPSA and NAPSA Mobile/USSD platforms. These initiatives include mobile registration, real-time tracking of member contributions, and digital payment systems (NAPSA, 2023a). These digital platforms demonstrate a concerted effort to enhance efficiency and improve pension service delivery, especially for members in remote or underserved areas (International Labour Organization, 2021).

However, ICT infrastructure disparities between urban and rural areas, limited access to smartphones or computers among older adults, and poor digital literacy continue to create bottlenecks in service delivery (ZICTA, 2024). According to the Zambia Information and Communications Technology Authority (ZICTA, 2023), only 34% of Zambians above the age of 55 regularly use digital devices, with even fewer confident in conducting financial transactions online. This digital exclusion affects pensioners' ability to access real-time updates, submit documentation, and confirm payment details, leading to significant delays and frustration.

This article examines the impact of ICT constraints on the timeliness of pension disbursements in Zambia. It explores how the digital divide manifests across different regions and demographic groups, and how it intersects with institutional and infrastructural challenges within public pension systems. By anchoring the discussion in empirical evidence, the article aims to highlight policy gaps and propose strategies for a more inclusive, resilient, and digitally enabled pension system.

Thematic Framework

This study adopts a thematic framework to explore the relationship between ICT challenges and timely pension disbursement in Zambia, focusing on four interlinked themes: (1) Structural Barriers to Timely Pension Payments, (2) Digital Literacy and User Preparedness, (3) Cybersecurity and Data Privacy Issues, and (4) Policy and Institutional Preparedness. These themes are interpreted through three theoretical lenses: Agency Theory, Digital Divide Theory, and the Technology Acceptance Model (TAM).

Structural barriers, such as administrative inefficiencies, poor digital infrastructure, and slow processing, often delay pension disbursement. Agency Theory explains how the principal-agent relationship between pensioners and institutions like NAPSA may lead to inefficiencies due to misaligned incentives and weak oversight (Jensen & Meckling, 1976). Structural failures, especially in rural areas, are compounded by poor communication and system downtimes, which further disadvantage those unable to hold institutions accountable (Kalinda, 2024).

The Digital Divide Theory (van Dijk, 2006) further supports this by highlighting unequal access to ICT infrastructure, particularly in underserved areas. Limited broadband, unstable platforms, and poor network coverage restrict pensioners' ability to access their benefits (ZICTA, 2022a). Beyond access, many pensioners, especially older adults, lack the skills or confidence to use mobile or online platforms. This usage divide, hinders uptake of digital solutions, even where infrastructure is available.

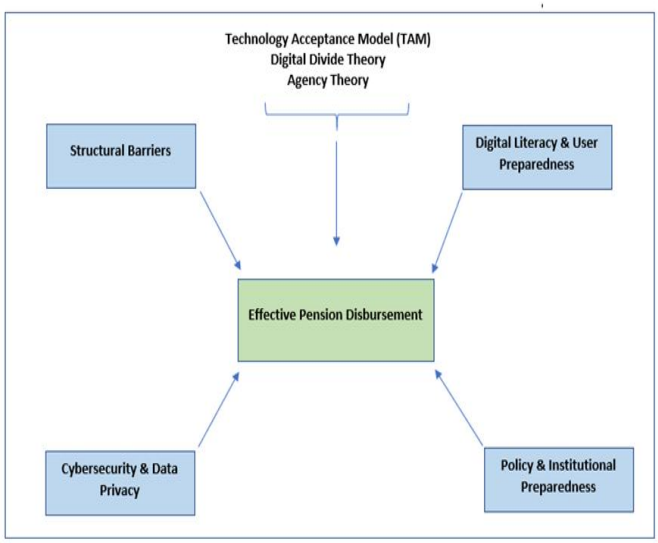
The Technology Acceptance Model (TAM) (Davis, 1989) offers a behavioral perspective. Pensioners' perceptions of usefulness, ease of use, and trust significantly influence their willingness to engage with ICT tools. Fear of making mistakes, fraud, or poor customer support causes some users to reject digital channels (Chirwa & Kalinda, 2016), preferring in-person transactions.

Cybersecurity and data privacy concerns also emerge as significant barriers. Pensioners fear data breaches, identity theft, and financial fraud (Zimba, Mukupa & Chama, 2022). These concerns, linked to TAM's construct of risk aversion, reduce trust in digital systems. Agency Theory also suggests that where institutional agents fail to ensure robust data protections, confidence in digital platforms erodes further.

Finally, policy and institutional readiness are crucial for successful ICT integration. Gaps in training, lack of inclusive outreach, and weak implementation of ICT reforms point to a disconnect between policy and practice. Bridging this requires addressing the outcome divide (van Dijk, 2006) and ensuring equitable access, oversight, and responsiveness within pension systems (ZICTA, 2022b). Together, these themes and theories guide practical and systemic reforms for more inclusive, secure, and efficient pension disbursement.

Below is a diagram illustrating how four thematic factors, Structural Barriers, Digital Literacy, Cybersecurity, and Policy Readiness, interact to influence the Effectiveness of Pension Disbursement in Zambia.

Figure showing a Framework of ICT Constraints and Pension Disbursement



ICT Constraints and Pension Disbursement: Generated by the authors

The diagram above presents an integrated framework linking ICT constraints to pension disbursement effectiveness in Zambia. It highlights how structural, behavioural, and policy factors interact, guided by three theories. The model underscores the need for both technological upgrades and governance reforms to enhance service delivery, inclusivity, and digital trust among retirees.

Methodology

This study employed a structured literature review guided by the SPAR-4-SLR (Scientific Procedures and Rationales for Systematic Literature Reviews) framework, a contemporary and rigorous model designed to enhance transparency, replicability, and academic quality in systematic reviews (Paul et al., 2021). The SPAR-4-SLR approach structures the review process into three distinct stages, Planning, Execution, and Reporting. It is particularly suited for multidisciplinary policy research, such as evaluating the intersection of ICT constraints and pension disbursement in Zambia.

The Planning stage involved defining the scope and objectives of the review, informed by the central research question: How do ICT constraints affect the timeliness and equity of pension disbursement in Zambia, particularly under the administration of NAPSA? To ensure relevance, key search terms were identified through exploratory scans of existing pension and ICT literature. These included: “pension ICT Zambia,” “digital divide retirees,” “e-governance social security,” and “NAPSA digital transformation.”

During the Execution stage, academic databases such as Scopus, Web of Science, African Journals Online (AJOL), and Google Scholar were systematically searched. Institutional repositories, including those of NAPSA and the Ministry of Labour and Social Security, were consulted for grey literature such as reports, policy briefs, ICT audit summaries, and seminar presentations. The inclusion criteria were: (i) English-language publications, (ii) published between 2012 and 2024, and (iii) focused explicitly on ICT-related challenges in pension delivery or administration in Zambia. Grey literature was incorporated due to its value in providing practical, real-time insights into policy shifts and technological implementations often not captured in peer-reviewed publications (Paez, 2017).

Conversely, exclusion criteria eliminated studies that did not focus on Zambia, lacked an ICT component, or broadly discussed retirement without reference to digital constraints or service delays. This ensured thematic accuracy and contextual relevance.

In the Reporting stage, the literature was thematically synthesised into four domains: (1) Structural Barriers and connectivity gaps, (2) Digital Literacy and User Readiness, (3) Cybersecurity and Data Privacy Concerns, and (4) Policy and Institutional Readiness. These domains emerged through iterative coding and are consistent with prevailing scholarship on the digital divide in social service delivery (van Dijk, 2020).

The merits of using SPAR-4-SLR were diverse. It enhanced procedural transparency, supported integration of academic and grey sources, and facilitated comprehensive coverage of interdisciplinary materials. Furthermore, its adaptability allowed for the inclusion of underrepresented but policy-relevant documentation (for instance, unpublished NAPSA reports), thereby enriching the empirical base for analysis.

This methodology ultimately ensured that the study's findings are based on clear, organised research that also considers the specific situation.

Literature Review and Synthesis

As pension systems embrace digital transformation, ICT has emerged as a critical tool for improving efficiency and service delivery. However, in Zambia, digital exclusion remains a major barrier, particularly for older and rural pensioners. This review examines how ICT-related constraints, such as poor infrastructure and low digital literacy, impact timely access to pension benefits, drawing on regional and global evidence.

4.1. Structural Barriers to Timely Pension Disbursement

Access to timely pension benefits in Zambia is critically hampered by uneven infrastructure development and unreliable connectivity. Studies show that broadband coverage and internet access remain concentrated in urban areas, leaving pensioners in rural communities underserved and vulnerable to delays in fund transfers and account verification processes (ZICTA, 2022b; Zimba, Mukupa, and Chama, 2022). These challenges resonated in international contexts where Hermayati, Listyaningsih, and Jumiati (2022) found that unstable internet networks and system errors in Indonesia's digital pension system disrupted timely payments and eroded user trust.

Similarly, Sari and Susilo (2020) emphasised that the failure of digital authentication systems due to technical faults often undermines service delivery effectiveness. Acevedo and Székely (2021), at global level also observed that pensioners in rural settings faced restricted access to financial services, pointing to infrastructural and institutional limitations that mirror Zambia's own connectivity challenges. Together, these studies demonstrate that ICT-based pension disbursement systems require robust, inclusive infrastructure to function reliably and equitably.

4.2 Digital Literacy and User Readiness

Although ICT tools have potential to improve pension reform, their effectiveness is limited by the digital skills of the users. In Zambia, many older pensioners do not have the technical skills needed to use online portals or mobile platforms to access their benefits. This digital exclusion is strongly linked to factors such as age, education, and previous experience with technology (Mutale, 2023). This concern is not isolated to Zambia as, Adeabah, Asongu, and Andoh (2020) found that in low- and middle-income countries, increased ICT penetration initially enhances pension inclusion but may eventually widen digital inequality over time if gaps in digital skills are not addressed.

Similarly, Thelwall (2022) stressed that user-friendly digital systems are essential for enabling older beneficiaries to interact meaningfully with pension platforms. Simonovits (2021) further cautioned that unless digital reforms are accompanied by inclusion measures, vulnerable populations may be inadvertently excluded from the gains of pension modernisation. These findings underscore the need for targeted ICT literacy programs and inclusive platform designs to ensure that Zambia's pension reforms leave no one behind (Kapanda, 2024).

4.3 Cybersecurity and Data Privacy Concerns

Despite the perceived benefits of digitisation, concerns about data privacy, fraud, and system vulnerabilities persist. In Zambia, the National Pension Scheme Authority (NAPSA) is still in the process of strengthening its cybersecurity protocols, and beneficiary reluctance to use digital platforms is partly rooted in fears of data misuse (PIA, 2021). Lessons from other regions reinforce these concerns. In Nigeria, Chidozie (2012) highlighted the successful use of biometric systems in detecting fraud and strengthening internal controls within pension administration.

However, Hermayati et al. (2022) revealed that even advanced authentication systems can trigger user anxieties if plagued by technical glitches or inadequate support. These findings align with broader calls for pension institutions like NAPSA to invest not only in technological infrastructure but also in cybersecurity frameworks and user education to build trust and encourage uptake of digital services.

4.4 Policy and Institutional Readiness

Institutional inertia and fragmented policy implementation have posed significant barriers to the effective digital transformation of Zambia's pension system. While national strategies promote e-governance and digital inclusion, progress remains constrained by underfunding, insufficient ICT training for staff, and weak inter-departmental coordination (Kapanda, 2024). These issues were similarly identified by Mulauzi, Hamoooya, and Munsanje (2014),

who emphasised that although ICT adoption in Zambia's pension sector improved record management, implementation was impeded by limited infrastructure and technical capacity.

International experiences reinforce the importance of institutional readiness. Galasso and Profeta (2023) stressed that successful ICT integration into pension systems depends heavily on frontline staff training and organisational alignment. The Punjab IT Board (2021) demonstrated that Pakistan's Pension Disbursement Management System (PDMS) achieved marked improvements in service delivery only after addressing coordination gaps and enhancing digital competencies among civil servants. These insights emphasise that Zambia's digital pension reforms must be accompanied by institutional restructuring and capacity-building to ensure sustainability and impact.

The literature reveals that ICT can enhance pension delivery but also risks deepening exclusion if digital divides are not addressed. Limited access, skills gaps, and weak policy support continue to delay benefits for vulnerable groups. Bridging this divide is essential for ensuring equitable and timely pension disbursement in Zambia.

Discussion

This study explored the effects of ICT constraints on the timely disbursement of pension benefits in Zambia, focusing on the National Pension Scheme Authority (NAPSA). The findings highlight a complex relationship of structural, behavioural, and institutional factors that shape the effectiveness of digital pension systems. While NAPSA has taken commendable steps towards digitisation, persistent challenges limit the realisation of timely, inclusive, and equitable pension delivery. Using Agency Theory, the Digital Divide Theory, and the Technology Acceptance Model (TAM) as interpretative frameworks allows a deeper understanding of how these challenges impact pensioners and the pension system's overall performance.

5.1 Structural Barriers

At its core, pension disbursement represents a principal-agent relationship where NAPSA, as the agent, is entrusted with managing pension payments on behalf of pensioners, the principals. According to Agency Theory, the success of this relationship depends on the agent's ability to act in the principals' best interests, mitigated by mechanisms that address information asymmetry and align incentives (Eisenhardt, 1989). However, the evidence indicates that structural barriers, especially ICT infrastructure disparities, disrupt this dynamic and undermine service delivery.

The Zambian context is marked by pronounced urban-rural disparities in internet and mobile network coverage. Data from ZICTA (2023) reveal that rural provinces such as Muchinga, Northern, and Western have significantly poorer ICT infrastructure compared to urban centres. These disparities create a gap where the agent cannot effectively reach many pensioners, resulting in delayed payments and limited access to digital pension services. This situation exacerbates the information asymmetry between NAPSA and pensioners, who have reduced visibility and control over their benefits.

Empirical studies corroborate this infrastructural challenge. Chewe and Zulu (2020) note that pensioners in underserved areas are often disconnected from digital platforms due to poor connectivity and limited access to mobile money agents. Zimba, Mukupa and Chama (2022) further highlight that infrastructural inadequacies contribute directly to income insecurity among older Zambians reliant on pension income. Thus, the principal-agent framework exposes how infrastructural weaknesses distort accountability and trust, with pensioners bearing the cost of system inefficiencies.

This analysis underscores the urgent need for targeted investments in ICT infrastructure as part of pension system reforms. Without improved connectivity and digital access, NAPSA remains unable to fulfil its mandate of timely pension disbursement, failing the principals it serves. Infrastructure development is not merely a technical fix but a foundational step towards restoring balance and trust in the pension system's principal-agent relationship.

5.2 Digital Literacy and User Readiness

The Digital Divide Theory provides an essential lens to understand the inequalities surrounding digital pension services. The theory posits that digital exclusion operates across three dimensions. These includes, access to technology, the ability to use it effectively, and the tangible outcomes achieved from its use (van Dijk, 2006). In Zambia, these dimensions converge to create multifaceted barriers for pensioners.

Access divides arise where broadband infrastructure and mobile money services are unevenly distributed. ZICTA (2023) reports that many rural areas remain without reliable internet or mobile coverage, forcing pensioners to rely on manual or in-person pension collection methods prone to delays and corruption. This physical inaccessibility perpetuates exclusion and reduces the effectiveness of digital pension initiatives.

Usage divides reflect the lack of digital literacy, especially among older pensioners. Chirwa and Kalinda (2016) found that many elderly individuals lack the technical skills required to navigate online portals or mobile payment platforms. This is compounded by low levels of formal education and minimal prior exposure to digital technology. The elderly are, therefore, not only physically excluded but also psychologically and behaviourally marginalised from the digital pension ecosystem.

Outcome divides manifest when those with access and skills experience faster, more reliable pension payments, while others continue to endure delays and inefficiencies. Adeabah, Asongu, and Andoh (2020) highlight that while increased ICT penetration initially promotes inclusion in pension systems in low- and middle-income countries, persistent gaps in digital literacy ultimately exacerbate inequality, creating winners and losers in the digital transition.

Urban-rural differences in digital adoption also reflect the divide dynamics. Even in urban areas with better infrastructure, lack of ICT literacy and fear of technology limit uptake (Kapanda, 2024). Thus, improving adoption rates requires addressing both the cognitive and emotional dimensions of technology use through education, reassurance, and ongoing support.

This study's findings align closely with these patterns. Pensioners in urban areas often report timely access to their benefits via digital platforms, while rural pensioners face recurring delays and service denials. The digital divide therefore reinforces and deepens socio-economic disparities, counteracting the inclusive goals of pension reforms. Closing these divides requires coordinated policy interventions addressing infrastructure, education, and targeted support for vulnerable groups.

5.3 Cybersecurity and Data Privacy Concerns

Beyond infrastructure and access, the adoption of digital pension services hinges on behavioural factors explained by the Technology Acceptance Model (TAM) (Davis, 1989). TAM argues that perceived usefulness and perceived ease of use are critical determinants of users' willingness to engage with technology. This study's findings reveal that many pensioners, especially those aged 60 and above, perceive digital pension platforms as complicated, unreliable, or risky.

Zimba, Mukupa, and Chama (2022) highlight fears related to fraud, transaction errors, and loss of funds, which diminish confidence and discourage many from embracing digital tools. This lack of trust is not unfounded, as cybersecurity incidents and system failures reported by Chidozie (2012) create real risks. These behavioural barriers compound technical challenges and create a vicious cycle of exclusion. Without robust cybersecurity measures and transparent grievance mechanisms, pensioners remain reluctant users, undermining the benefits of digital reforms.

Weak cybersecurity protocols and inadequate communication around data protection exacerbate pensioners' anxieties (Hermayati et al., 2022; Chidozie, 2012). Cases of data breaches or unresolved transaction errors have led many to prefer traditional, manual pension collection methods despite longer waiting times and greater inconvenience.

Trust plays a vital role in both Agency Theory and TAM frameworks. Pensioners' trust in NAPSA as the agent depends on secure, reliable pension delivery, while their trust in technology influences their willingness to use digital platforms. This study identified widespread distrust in digital pension systems rooted in cybersecurity fears and poor incident resolution.

For NAPSA, strengthening cybersecurity, ensuring rapid and fair resolution of issues, and educating pensioners on safe digital practices are imperative. Building trust not only enhances user uptake but also realigns the principal-agent relationship, reinforcing NAPSA's accountability and legitimacy.

5.4 Institutional Readiness and Capacity Challenges

Institutional capacity remains a critical factor shaping the success of pension digitisation. Agency Theory stresses that agents must have adequate resources, expertise, and incentives to meet principals' needs (Eisenhardt, 1989). This

study found that NAPSA faces significant constraints including limited staff training, fragmented coordination, and limited budgetary support, which impair digital transformation efforts (Mulauzi et al., 2015).

These operational bottlenecks reduce efficiency and frustrate pensioners, who experience delays, system errors, and poor customer service. Lessons from international experiences, such as Pakistan's Pension Disbursement Management System (Punjab IT Board, 2021), demonstrate that strong leadership, cross-agency coordination, and continuous capacity building are essential for successful digital reforms.

Improving institutional readiness at NAPSA requires investment in staff training focused on digital skills, better integration of ICT systems across departments, and strengthening governance mechanisms to ensure accountability. Aligning organisational culture and workflows with the demands of a technology-driven environment is crucial for sustainable pension service improvements.

5.5 Synthesis and Implications for Policy and Practice

Bringing together the theories and findings from this study, it is clear that Zambia's pension system stands at a crossroads between great potential and ongoing exclusion. Digital technologies can improve efficiency and transparency, but their success depends on closing the digital divide at every level, access to technology, skills to use it, actual usage, and the benefits gained.

Policies should not focus on digitisation alone but must promote inclusive digital change. This means:

- Expanding ICT infrastructure in rural areas,
- Offering ICT training programs designed especially for older pensioners,
- Improving cybersecurity and building trust in digital systems, and
- Preparing institutions through better staff training and improved coordination across departments.

Only by taking this broad and connected approach can Zambia's pension system truly protect all retirees, whether they live in cities or rural areas, whether they are comfortable with technology or not, making sure no one is left behind in the digital era.

Research Gaps and Future Directions

While this review highlights critical intersections between ICT constraints and pension disbursement in Zambia, several key research gaps persist. Much of the existing literature remains policy-oriented or descriptive, with limited empirical inquiry into how digital exclusion affects pensioners at the household or individual level. Moreover, there is a lack of granular, disaggregated data that captures regional, demographic, and socio-cultural nuances in digital pension access.

6.1. Limited Micro-Level and Context-Specific Evidence

Despite acknowledgment of infrastructure and literacy challenges, few studies systematically examine how these factors influence pension access across Zambia's ten provinces. The lived experiences of rural pensioners, particularly those with no alternative income sources or support networks, remain largely undocumented. Future research should therefore: Conduct geospatial and ethnographic studies to map pension disbursement delays, identify ICT access blackspots, and analyse how regional disparities affect the reliability and dignity of pension delivery.

6.2. Unexplored Effectiveness of ICT Literacy Initiatives

While digital literacy has been recognised as a major barrier, little is known about the effectiveness of existing interventions aimed at bridging this divide among pensioners. There is also insufficient data on how retirees engage with available training programs, if any exist, and whether such programs are tailored to the cognitive and physical needs of older users. Future studies should evaluate the design, reach, and impact of ICT training programs targeting older adults, particularly those over 60 years of age. Research should also explore user interface preferences and learning methods to support more inclusive digital platforms.

6.3. Gender and Socio-Cultural Barriers

Digital inequality is not uniformly experienced; factors such as gender, education level, and household dynamics may exacerbate barriers to pension access. However, most existing studies treat pensioners as a homogenous group. Future inquiry should investigate gender-specific challenges in accessing digital pension services, especially for widowed

or unmarried women who may face both financial and technological exclusion.

6.4. Role of the Private Sector and Multi-Stakeholder Collaboration

The role of mobile network operators, fintech companies, and digital infrastructure providers in enhancing pension service delivery is under-researched. There is potential for public-private partnerships (PPPs) to expand ICT coverage, provide secure platforms, and support last-mile connectivity. Future research should analyse existing PPP models or pilot projects to assess their impact on pension disbursement equity. In addition, studies could explore the regulatory and operational challenges that hinder private sector engagement in pension service provision.

6.5. Inclusion of Informal Sector Retirees

A final research gap concerns informal sector retirees, many of whom are not formally covered by NAPSA but may be eligible for voluntary contributions or future social pension schemes. The intersection of mobile money, ICT access, and retirement preparedness in this group is poorly understood. Research should assess how mobile financial services could be leveraged to improve pension inclusion for informal workers and informal retirees. Moreover, future studies should explore willingness and barriers to enroll in digital pension platforms among informal sector populations.

A more evidence-based approach is needed to ensure that digital pension reforms in Zambia are truly inclusive, responsive, and grounded in the realities of all beneficiaries. By addressing the micro-level, gendered, regional, and institutional dimensions of the digital divide, future research can help inform policy interventions that move beyond infrastructure to promote equitable access and user empowerment in pension disbursement systems.

Conclusion

This study examined how ICT constraints affect the timely and fair disbursement of pension benefits in Zambia, focusing on the National Pension Scheme Authority (NAPSA). Guided by a theoretical framework that includes Agency Theory, Digital Divide Theory, and the Technology Acceptance Model, the study shows that a mix of technological, behavioural, and institutional challenges contributes to delays in benefit payments, especially for pensioners in rural and digitally excluded areas.

The findings show that although digital systems can improve service delivery, the benefits are not reaching everyone equally. Problems like weak internet connections, limited electricity, and lack of access to devices make it hard for many to use digital services. In addition, digital illiteracy, fear of online fraud, and low trust in digital platforms further reduce the use of these systems. Even where the technology is available, poor institutional support and user concerns continue to limit the effectiveness of digital disbursement. Under Agency Theory, these issues indicate a breakdown in the relationship between the agent and the principals. When agents do not act in the best interests of those they represent, due to weak systems, inadequate engagement, or poor communication, both trust and service quality are negatively affected.

Finally, while digital reforms offer important opportunities, they are not sufficient on their own. Without inclusive and well-managed strategies, these changes may worsen existing inequalities instead of solving them. Closing the digital divide in pension systems is not just about improving technology, it is a social and policy priority that must ensure no one is left behind.

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