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THERECIA MWENDE KAVINDU
ROBERT ARASA



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DIGITAL AGILITY IN KENYAN INSURANCE FIRMS: A CRITICAL REVIEW OF ENABLERS, BARRIERS, AND PERFORMANCE OUTCOMES

Therecia Mwende Kavindu[1], Robert Arasa[2]

Abstract

This paper presents a critical review of digital agility in Kenyan insurance firms, with a specific focus on examining its key enablers, barriers, and performance outcomes. Despite increasing adoption of digital technologies such as artificial intelligence, big data analytics, cloud computing, blockchain, and mobile platforms, the Kenyan insurance sector continues to experience low penetration and uneven digital transformation. This study synthesizes existing empirical, theoretical, and industry literature to provide a comprehensive and analytically grounded understanding of digital agility within the sector. The review identifies several critical enablers of digital agility, including expanding mobile infrastructure, regulatory innovation through sandbox environments, strengthening data protection and governance frameworks, and growing collaboration between insurers and InsurTech firms. In particular, data protection emerges as a foundational enabler, enhancing consumer trust, ensuring regulatory compliance, and facilitating secure digital transactions. However, the study also highlights persistent barriers such as legacy systems, low digital literacy among consumers and employees, high implementation costs, organizational resistance to change, and regulatory uncertainty surrounding emerging technologies. In terms of performance outcomes, digital agility is found to significantly enhance operational efficiency, customer experience, financial inclusion, and competitive positioning of insurance firms. Firms that effectively leverage digital capabilities demonstrate improved service delivery, product innovation, and market responsiveness, particularly in reaching underserved populations. The findings underscore the strategic importance of digital agility as a driver of transformation in the Kenyan insurance industry. The paper concludes that sustained progress requires coordinated efforts among regulators, insurers, and technology partners to strengthen digital infrastructure, enhance data protection frameworks, and promote inclusive innovation.

Key Words: Artificial intelligence, Digital agility, Digital technologies, Insurance sector, Kenya

[1] Department of Business and Finance, Machakos University, Machakos, Kenya - *thereciak@gmail.com*
[2] Department of Business and Finance, Machakos University, Machakos, Kenya

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Faculty of Business and Management Sciences
University of Nairobi

Introduction

The fast evolution of digital technology has led to significant changes in the nature of competition in the international insurance industry, necessitating that companies become more flexible and adaptable in their approaches. In Kenya, an increasing number of insurance companies have been adopting digital transformation practices to improve efficiency, optimize customer service, and keep up with the changing needs of the market. Digital agility, which refers to an organization's ability to quickly adapt to new technological and market changes, has become one of the key capabilities needed to stay competitive in such a dynamic business environment. Although digital transformation has received considerable attention recently, there is little research available on the factors facilitating or hindering digital agility in the Kenyan insurance industry, as well as on its effects on performance.

Background of the Study

Globally, the insurance industry has been using digital tools more often to address evolving consumer needs and business challenges at the international level. McKinsey and Company (2021) state that the insurance landscape has been transformed by the widespread use of digital technologies, including artificial intelligence, blockchain, and other analytics based on big data. These technologies can help an insurer deliver product personalization, streamline underwriting operations, and enhance risk evaluation. There is a lot of emphasis on digital agility in the report by McKinsey, as it helps the insurers to quickly embrace these technologies to lower their costs of operation and the resultant high efficiency. The authors conclude that insurers that do not go through the digital transformation are likely to lose market share to more nimble players. An analysis by Deloitte (2020) supports these conclusions and notes that the digital tools used by insurers in different markets have helped them to better customer experience and to boost data analytics and simplify the claims processing process. The report states that mobile platforms and chatbots are actively applied to address customers and faster make claims. Specifically, mobile-enabled insurance products have emerged as a major source of financial inclusion, enabling insurers to access underserved groups. According to Deloitte, an effective digital infrastructure with digital agility will be one of the primary success factors of the global insurance market in the future. The insurance market in Kenya is an exceptional case study when it comes to Africa and digital transformation. The Kenya National Bureau of Statistics (2023) reports that the penetration rate of insurance in Kenya is only 2.3 percent, which is much lower than the global average and represents the untapped potential of the sector. Nevertheless, as shown by recent trends, there is an increasing interest in digital solutions as insurers attempt to address this challenge. According to Lexology (2024), mobile money services like M-Pesa have been instrumental in increasing the number of people in Kenya who have access to insurance services. Accessibility to microinsurance products through mobile has contributed to the diminishing of affordability related barriers.

According to a report by Cytonn (2024), another aspect that is rising in Kenya is the contribution of InsurTech firms in the insurance industry. The number of active InsurTech firms that have raised over $51.7 million is about 31, and these companies are capitalizing on the availability of digital solutions to provide more flexible insurance solutions, including pay- as-you-go motor insurance and mobile health insurance. These innovations have enabled Kenyan

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insurers to address the needs of digitally savvy consumers, especially the younger generation who have been found to lean towards digital-first solutions. Nevertheless, Cytonn (2024) also states that, even though these are positive trends, the rapid deployment of digital technologies is still hindered by a number of factors, such as digital literacy, legacy, and slow regulatory changes.

The insurance sector has always been behind in the sphere of digital agility adoption in Kenya, and the industry remains deeply rooted in the traditional ways of doing things. The recent trends, however, show that the situation has changed considerably in this aspect, as there is an urgent necessity to adjust to the new environment of the COVID-19 pandemic and a more technologically advanced group of consumers. Similar to insurers in other developing economies, insurers in Kenya are seeing the benefits of digital agility as a way to increase their operational efficiency, expand their reach to the market, and become innovative. This is now more important than ever in the context of a larger economy, as insurance firms are trying to find their feet in a world rattled by global shocks and a competitive environment that is still in flux (Business Daily Africa, 2024).

As of 2023, the insurance penetration rate of Kenya was estimated to be about 2.3 percent; though it has slightly improved, it remains far behind other countries in Africa, including South Africa with an insurance penetration rate of 13.6 percent (Lexology, 2024; Cytonn Report 2024). The sector has been slow to grow, and insurers have been unable to provide products that adequately meet the needs of the broader population, particularly those in rural and informal segments that constitute a significant portion of the Kenyan market (Lexology, 2024; Cytonn Investments, 2024). This low penetration has been attributed to several factors, including the cultural perception of insurance as a luxury, high premium costs, limited awareness, and a general lack of trust in the industry (World Bank, 2020; Finance in Africa, 2023). Moreover, according to PMC, (2023) many of the traditional insurers continue to operate outdated legacy systems that prevent innovation and make it difficult to meet the needs of digitally connected customers today. The role of technology and its impact on redesigning the insurance landscape cannot be overstated, and this is where the notion of digital agility emerges as an essential requirement. Digital agility is an attribute of a business that is able to adapt rapidly to novel technological trends and changes in the business environment to be more responsive to customer demands and business requirements. The mobile platform, artificial intelligence (AI), blockchain, and big data analytics (BDA) have essentially revolutionized the insurance industry around the world, providing it with a platform to offer more customized, convenient, and low-cost services. M-Pesa mobile money applications have also contributed to the uptake of microinsurance products, especially among low-income earners and those living in the rural region of Kenya (Lexology, 2024; Finance in Africa, 2023). This has not just enhanced financial inclusion and access to insurance products by under-served populations but has also opened new channels to premium collection, claims settlement and customer service.

Furthermore, interest in InsurTech innovation is increasing, and today, Kenya has approximately 31 operational InsurTech firms who have raised more than US $51.7 million to develop and grow digital insurance services (Finance in Africa, 2023). With technology, these companies are disrupting classic models with

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more flexible premiums, customized insurance products, and automated processes that deliver better customer experience and operational efficiency. A great number of insurers are also collaborating in close association with regulatory bodies, including the Insurance Regulatory Authority (IRA), which has pursued a progressive approach to innovation, creating regulatory sandboxes that enable insurers to test new technology in a regulated setting. This has made it easier to develop new solutions that can spearhead further growth in the industry (Cytonn Report, 2024). In spite of these developments, there are some barriers to further implementation of digital solutions in the Kenyan insurance industry. Digital literacy (among consumers and insurance staff) is one of the most important challenges. Although mobile penetration is rampant, not all people especially in rural and underserved regions have the required skills to fully exploit digital interfaces and platforms. Additionally, most traditional insurers struggle to completely transform their operations with digital technologies, with most of their operations still being governed by legacy systems. Uncertainty in the sector is also partly predetermined by the gradual pace of regulatory change: insurers remain uncertain about the legal aspects of the use of new technologies, including AI and blockchain (Cytonn, 2024; Semantic Scholar, 2023).

Nevertheless, despite these difficulties, some remarkable performance results reflect the beneficial effects of the digital transformation in the industry. Some of the insurers, already using technology, are reporting higher operational efficiency, as automation and human intelligence have drastically decreased the turnaround time in claims processing and underwriting. The improvements save money, not only that but the customers are also more satisfied since currently the services are much faster and clearer. Other than that, mobile enabled microinsurance has also led to increased financial inclusion, and thus, insurance covers have been in a position to access individuals in under-served communities within the society (Lexology, 2024; Semantic Scholar, 2023). Additionally, insurers that invested in a digital platform can now provide more innovative products which can serve the unique needs of various segments of consumers. There is an increasing adoption of products such as pay- as- you-go motor insurance and mobile health insurance, especially by younger and more digitally savvy consumers. The growth of 16.7 percent in the gross written premiums in FY 2023 is regarded as an indicator of the health of the insurance business and its increasing market share (Cytonn Report, 2024). Additionally, InsurTech companies are increasingly being considered as players who are nimble in the market and can leverage their digital capabilities to respond to changing consumer needs and market trends faster than traditional insurers.

Overall, the Kenyan insurance market is currently in a transition phase, where remarkable advancements have been achieved regarding the digitalization of the industry, but there are also a lot of challenges that hinder the achievement of its full potential. The future of Kenyan insurers will be determined by how they overcome the technological infrastructure gaps, explore innovation, and partner with regulatory authorities to establish a digital transformation-friendly environment. This type of policy maker-regulator-industry alignment in the future would be necessary in order to ensure that these barriers are removed and the profits of digital agility are distributed between the insurance firms and the consumers (Cytonn Report, 2024; Finance in Africa, 2023).

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The objective of the paper was to undertake a detailed overview of the process through which digital technologies are disrupting the Kenyan insurance industry, including what enables the process, what impedes it, and what performance results are being achieved due to digital agility in the insurance industry. The findings of this paper are intended to assist the policy makers, the business executives, among other interested parties who are keen to find a way through the shifting climate of digital insurance in the region, to deliberate on the issues and the successes in Kenya. In doing so, it highlights the need to continue to invest in digital infrastructure, capacity building, and regulatory frameworks to catalyze the next phase of sector development. The experience of Kenya could also be used as the blueprint by other African nations that attempt to implement more digital technologies in their respective insurance markets.

Research Problem and Objectives

The Kenyan insurance industry continues to face persistent structural and operational challenges that limit its growth, competitiveness, and overall contribution to economic development, particularly amid digital transformation. Despite recent efforts to integrate digital technologies, insurance penetration in Kenya remains low at approximately 2.3 percent, significantly below the global average of about 7 percent and far behind leading African markets such as South Africa, which records a penetration rate exceeding 13 percent (Lexology, 2024; Cytonn Investments, 2024). This low uptake has been attributed to factors such as negative consumer perceptions of insurance as a non-essential service, high premium costs, limited trust, and inadequate awareness among potential clients.

Besides these demand-side limitations, there are also supply-side problems that deter growth in the sector. Most legacy insurance companies are still running on old legacy systems, which restrict their innovation, operational effectiveness and their capacity to adapt to changing demands of digitally mindful consumers (PMC, 2023). Despite the rising prospects of accessibility, affordability, and service delivery enabled by emerging technologies like artificial intelligence (AI), big data analytics (BDA), blockchain, and mobile platforms, their use in the sector has been sluggish and unequal. The main challenges are low digital literacy of consumers and employees, regulatory uncertainties related to new technologies and infrastructural inequalities, especially in rural regions (Cytonn Investments, 2024; Finance in Africa, 2023).

Although the advent of InsurTech companies has brought new, flexible, and customer-focused solutions, their effect has been disjointed and has not yet led to an industry-wide change. Consequently, a paradox emerges: although digital transformation offers considerable potential to improve insurance penetration, operational efficiency, and market inclusivity, multiple systemic barriers continue to hinder the effective realization of digital agility within Kenyan insurance firms.

This situation reveals a critical knowledge and practice gap regarding how digital agility can be effectively leveraged within the Kenyan insurance context to overcome existing constraints and enhance firm performance. More specifically, there was limited synthesized evidence on the key enablers that facilitate digital agility, the barriers that impede its adoption, and the extent to which digital agility influences performance outcomes within the sector.

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Guided by this gap, the purpose of this study was to critically examine the enablers, barriers, and performance outcomes of digital agility in Kenyan insurance firms. In doing so, the study seeks to provide a comprehensive understanding of how digital agility can be harnessed to improve innovation, operational efficiency, and market reach within the industry.

Accordingly, the study was guided by the following research question:

What are the key enablers and barriers of digital agility in Kenyan insurance firms, and how does digital agility influence their performance outcomes?

Objectives

i. To identify the Key enablers of digital agility in Kenyan Insurance Firms.
ii. To examine the barriers hindering the adoption of digital agility in Kenyan Insurance Firms.
iii. To assess the effect of Digital Agility on the Performance Outcomes of Kenyan Insurance Firms.

Theoretical Anchorage

Literature Review

Digital agility is a concept that has been gaining academic interest in the wider context of digital transformation and dynamic capabilities. Theoretically, digital agility has its roots in the dynamic capabilities theory, according to which companies are required to continually combine, develop, and reorganize both internal and external capabilities to respond to the fast-evolving environment (Teece, 2018; Helfat and Peteraf, 2015). Simultaneously, the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) offers the principles of the use of digital technologies by individuals and organizations by focusing on perceived usefulness, ease of use, and behavioral intentions. These theoretical lenses are essential to the explanation of organizational and consumer adoption of digital solutions in the insurance industry.

Empirical Review

Digital agility has been largely accepted globally as one of the essential drivers of competitiveness in the insurance sector. Research in established markets shows that insurers that utilize artificial intelligence (AI), big data analytics (BDA), and cloud computing are characterized by high levels of operational efficiency, responsiveness to customers, and innovation capability (McKinsey and Company, 2021; Deloitte, 2020). Protogerou et al. (2020) also suggest that in dynamic and uncertain settings, digital agility helps firms to quickly sense and respond to changes in the market, which contributes to improving the performance of firms. On the same note, Vial (2019) views digital transformation as a process that radically changes the structure of the organization, value creation processes, and customer relationships, and agility can become a key result of this change.

In the emerging markets, especially in Africa, digital agility is synonymous with the infrastructural development and financial inclusion. According to the World Bank (2019, 2020), digital platforms, in particular, mobile technologies, have a transformative effect in increasing access to financial services. In this regard, Kenya has been one of the brightest examples with its high mobile penetration and mass adoption of mobile money services like M-Pesa. Kariuki et al. (2021) show that mobile-based insurance solutions have played a crucial role in enhancing access to insurance products by underserved populations, especially in rural areas. This is in line with other general empirical

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evidence in the developing economies, where mobile-enabled services lower the transaction costs and geographical barriers. The technological infrastructure, thus, is a key facilitator of digital agility. Another example is cloud computing that has been noted to be a pivotal contributor to scalability and flexibility in insurance operations. According to Basha (2022), cloud-based systems also allow insurers to effectively handle huge datasets, lower operational expenses, and implement innovative solutions faster. This is in line with the international data, which indicated that the adoption of cloud can improve the responsiveness of the organization and facilitate timely decision-making. The regulatory frameworks are also crucial in digital agility. Regulatory sandboxes (and other progressive regulatory environments) around the world have helped to experiment with new technologies, such as AI and blockchain. Mwangi et al. (2020) emphasise the potential of Kenya Insurance Regulatory Authority (IRA) to promote innovation by implementing sandbox programs, which give companies an opportunity to test new solutions in controlled settings. Similar efforts in other jurisdictions have shown that regulatory facilitation decreases uncertainty and speeds up the process of digital adoption (World Bank, 2019). Nonetheless, the literature also suggests that regulatory lag tends to be a widespread issue in most emerging economies restricting the full potential of digital transformation benefits. In addition to technological and regulatory influences, organizational capabilities and executive dedication are also important. According to Mutua et al. (2023), a vision of leadership and a strategic orientation on digital transformation have a significant impact on agile organizational cultures development. Vial (2019) supports this point of view, stating that effective digital transformation not only demands technological investment but also change in culture and alignment of leadership. Those companies that develop learning-based and innovation-driven cultures are in a better place to embrace and maintain digital agility.

Despite these enablers, the literature consistently identifies several barriers that hinder digital agility adoption. Digital literacy is one of the most notable issues. According to Gikandi et al. (2022), both the consumers and employees have limited digital skills, which limits the successful use of digital platforms. This is not a Kenya problem but is very common in developing economies where variations in digital abilities do not only worsen the gaps on digital services but also on access.

Another major impediment is legacy systems. According to Njiru and Mugo (2021), the use of old technological platforms restrain the adoption of sophisticated digital tools like AI and blockchain. This is further complicated by the fact that system upgrades and retraining of the work force is expensive, especially to smaller firms. This observation aligns with the evidence of the global community that legacy systems hinder innovation and slacken down the process of digital transformation (World Bank, 2019).

There is also a significant constraint in regulatory uncertainty. Kungu and Ngugi (2023) note that the lack of clear recommendations on the emerging technologies causes reluctance among the insurers, which restricts their desire to invest in digital innovations. This is indicative of a larger problem in the emerging markets, where regulation systems tend to lag behind in the fast-moving technological changes.

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The literature has good evidence on the positive effect of digital agility on firm performance in terms of performance outcomes. Omondi and Ochieng (2022) prove that automation and AI have largely minimized claims processing time and the cost of operations in Kenyan insurance companies. These results are consistent with Teece (2018), who states that digital technologies can help to increase efficiency by simplifying the process and eliminating redundants.

Digital agility has also led to customer satisfaction and financial inclusion. Njiru et al. (2023) demonstrate that digital platforms allow the insurers to offer more convenient, transparent, and accessible services, which result in the improvement of customer experiences. Moreover, mobile-based microinsurance has increased the range of coverage to the low-income groups, which supports the idea of digital technologies as a tool of financial inclusion (World Bank, 2020).

Lastly, digital agility increases competitiveness due to innovation. Ochieng et al. (2021) discovered that digitally agile companies are in a better position to create new products, including pay-as-you-go insurance, to meet the changing consumer demands. This innovation potential enables companies to enter untapped markets and increase their market share, which is in line with the results of the overall emerging market research (Protogerou et al., 2020).

As such, the literature shows that digital agility is a complex concept that is influenced by technological, organizational, and regulatory factors. Although the Kenyan context offers a lot of insight into the importance of mobile technologies and financial inclusion, global theoretical and empirical perspectives add value to the knowledge of digital agility and pinpoint its opportunities and challenges in various contexts.

Conceptual Review

The concept of digital agility in modern organizations arises from the study of dynamic capability and digital transformation theory, which focus on the integration, development, and reconfiguration of the organization's resources within its internal and external environment. Research on the insurance industry in Kenya shows that identifying adaptive challenges and leadership behaviors greatly impacts the success of the process of digital transformation, indicating that organizational culture and adaptability are essential factors for agility (Odindo et al., 2023). Empirical data also show that digital adoption, including artificial intelligence, mobile technology, and analytics, has a positive impact on performance measures, such as customer satisfaction, efficiency, and innovation in Kenyan insurance companies (Mueni & Angima, 2022). In relevant literature from the finance services sector, it is found that the regulatory environment, technological developments, and evolving customer expectations have a significant impact on digital transformation strategy and competitive advantages (Otieno, Karimi & Nyataya, 2025). Related research in the insurance industry across other African countries shows similar patterns, where legacy insurers' slow adoption of innovative technologies, such as Internet of Things and InsurTech, affects their adaptation to new realities and competitive reactions (Moodley, 2019). Together, these findings indicate that digital agility is not just a function of technology deployment but also of organizational readiness, supportive regulation, and contextual enablers that drive performance outcomes across emerging markets.

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Research Methodology

This study adopted a qualitative research design grounded in a critical literature review approach, with the aim of synthesizing and critically evaluating existing knowledge on digital agility within Kenyan insurance firms. A critical review allows for greater analytical flexibility by integrating, comparing, and interpreting diverse sources of literature. This approach was particularly appropriate for the present study, as it enabled the incorporation of theoretical, empirical, and contextual perspectives necessary to comprehensively examine the enablers, barriers, and performance outcomes of digital agility.

The study relied entirely on secondary data, drawing from a broad range of scholarly and professional sources. These included peer-reviewed journal articles, industry reports, policy documents, and publications from international organizations and consulting firms. Relevant literature was identified through searches in academic databases such as Google Scholar and Scopus, as well as institutional repositories. The search process was guided by key terms including "digital agility," "digital transformation," "insurance sector," "InsurTech," "Kenya," and "emerging markets." These keywords were used both independently and in combination to ensure adequate coverage of the topic.

In line with the critical review approach, the study employed a purposive and selective sampling strategy to identify literature that was most relevant to the research objectives. The inclusion criteria focused on studies published between 2019 and 2025 to ensure the currency of the analysis, particularly given the rapidly evolving nature of digital technologies. However, earlier seminal works were included where necessary to provide theoretical grounding. Selected studies were required to address issues related to digital transformation, digital agility, or technology adoption within the insurance sector or closely related financial services industries. In addition, both Kenya-specific studies and those from other emerging and global contexts were included to enrich the analysis and provide comparative insights.

Conversely, studies that lacked methodological rigor, were not directly related to the insurance sector, or did not contribute meaningfully to the understanding of digital agility were excluded. This selective approach ensured that the review remained focused while still capturing a sufficiently diverse range of perspectives. It also supports the study's later acknowledgment of limitations, particularly regarding the relative scarcity of Kenya-specific empirical research on digital agility.

The thematic analysis was performed to analyze the chosen literature to offer the systematic and adaptable frameworks of identifying, analyzing, and interpreting patterns in the data. It started with the thorough familiarization of the chosen sources, which was done by reading and re-reading them, and then the researcher identified recurring ideas and concepts. This was to be followed by a first coding phase, in which pertinent text snippets were grouped along the lines of relevance to the study objectives. The concepts that were considered as key code included technological infrastructure, regulatory frameworks, leadership, digital literacy, legacy systems, and performance outcomes.

These codes were then grouped into larger themes that were universal patterns in the literature. To illustrate, the technological enablers were grouped into issues related to mobile technology, cloud computing, and digital platforms, whereas the problems concerning the lack of skills and limitations in

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user capabilities were divided into digital literacy barriers. The themes were then checked and narrowed down to achieve internal consistency and also to make sure that they are in line with the study objectives. In this iterative process, three broad thematic groups were formed, which includes enablers of digital agility, barriers to digital agility, and performance outcomes of digital agility.

The last step entailed the synthesis of these themes into a critical and coherent narrative. It involved making comparisons between the results of various studies, finding points of intersection and divergence, and connecting the results to theoretical frameworks. Thus, the analysis went further than the descriptive summary to give a more analytical insight into digital agility in the Kenyan insurance industry and any other similar environment.

The study relied on several sources of literature to increase the credibility and strength of the findings hence, to some extent, triangulation was possible. The combination of the empirical studies and theoretical contributions also enhanced the analysis. Also, the process of thematic analysis was structured and enhanced the transparency and consistency of deriving and interpreting the findings.

The study was carried out with ethical considerations that were followed strictly. The reference materials were cited appropriately according to the requirements of the APA 7th edition, which ensured academic integrity. All data used in the study were publicly available, and no confidential or proprietary information was involved. The views and findings of the original authors were also well represented with care.

Although these are the strengths, there are some limitations which are recognized. Use of secondary data also exposes the risk of publication bias where the research that provides a positive result may be more easily accessed. Moreover, there is a possibility that the scope of localized analysis is limited due to the lack of context-specific empirical research on digital agility in Kenya. The comparability of findings can also be influenced by the differences in methodological approach used in the reviewed studies. Nevertheless, the critical review method used in this paper offers a detailed and analytically enriched literature synthesis, which has useful information regarding the nature of the dynamics of digital agility in Kenyan insurance companies.

Data Analysis and Results

Enablers of Digital Agility in Kenyan Insurance Firms

An increasingly available digital infrastructure is a critical facilitator of digital agility in Kenyan insurance companies. In the past two years, Kenya was recording massive success in mobile and internet penetration with mobile penetration at over 90 percent and internet penetration rising in urban and non-urban areas. This has provided an ideal environment where insurers are embracing digital tools and platforms, which are driving innovation and operational efficiency. The World Bank (2020) highlighted the revolutionary idea of digital platforms and especially in emerging markets, a digital platform is considered to promote financial inclusion and business efficiency in new sectors such as insurance. Mobile money systems like the M-Pesa have made this possible and redefined interactions between Kenyans and financial services. The latter is the opinion put forward by Kariuki et al. (2021) who proved that the mobile-based systems would expand the coverage of poorly served and rural areas to insurance services since the insurance providers

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would receive access to the hitherto inaccessible market segments due to the geographical or socio-economic factors. Moreover, the emergence of cloud computing has offered Kenyan insurers the opportunity to expand their operations at reduced costs. Basha (2022) also highlighted that the insurers can use cloud-based solutions to organize the information and save money and deliver better services to its customers. Such adaptability in the control of technological infrastructure enables the adoption of digital principles and contributes to the agility of insurance companies in a highly competitive environment.

The results are consistent with the global trends reported by Protogerou et al. (2020), who found that organizations in highly dynamic markets, such as ones in Africa, use digital agility to be innovative and respond rapidly to changes in consumer demand, technological changes, and the market. In this respect, digital platforms have emerged as one of the key assets of Kenyan insurers that struggle to keep up with their competition and remain relevant. Another digital agility enabler among insurance companies in Kenya is facilitating regulatory environment. The regulatory authorities, especially the Insurance Regulatory Authority (IRA) of Kenya has also been another important digital innovation stakeholder of the industry. According to Mwangi et al. (2020), the establishment of an IRA regulatory sandbox has been critical in facilitating the future adoption of technologies, such as AI and blockchain. Under such a program, the insurers can explore new technologies without worrying over regulation and is free to experiment in an effort to innovate. As per the principle of the regulation, this type of assistance is correlated with the conclusions of the World Bank (2019) in the definition of the assistance of the problem of the digital transformation turns to the relevancy of the step-by-step strategy to the regulation and the author himself refers to the fact of the ignorance of the legality of some of the interventions in the promotion of the implementation of new technologies in the developing economies. The proactive role IRA has played in encouraging digital innovation has helped create a climate that contributes to the growth and development of digital agility in Kenyan insurance companies.

Alongside technological infrastructure and regulatory support, organizational culture and leadership devotion to digital transformation are key facilitators of digital agility. Mutua et al. (2023) highlighted the reality that many more companies should build an agile culture in case its leadership focuses on digital innovation. Individuals who promote the use of new technologies and actively facilitate the introduction of digital technologies into organizational operations provide an environment within which innovation can flourish. It was also backed by Vial (2019), who reckons that the scale to which any organization is creative and adaptive is directly correlated to the vision of the leadership and organization willing to change. With appropriate leadership, insurance companies can more easily overcome the obstacles to digital transformation and create an organizational culture that embraces agility, flexibility, and constant learning.

Notably, the review has found data protection frameworks to be a key enabler of digital agility. According to Government of Kenya (2019), after the implementation of the Kenya Data Protection Act (2019), research shows that there is a rise in institutional trust in digital operations and a subsequent rise in consumer readiness to use digital financial services (World Bank, 2021). It is proven that more than 60 percent of

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consumers become more inclined to use digital financial services in case they are guaranteed privacy and security (GSMA, 2022).

Data protection has been a cornerstone facilitator of digital agility, especially in the insurance industry, where sensitive consumer data is regularly handled. Efficient data protection policies build consumer confidence, reduce privacy threats, and ensure legal compliance, thus persuading both insurers and buyers to embrace online services with confidence (Mwangi et al., 2020; World Bank, 2019). As an example, the Data Protection Act (2019) of Kenya offers insurers certain guidelines on how they can safely store, process, and share the data of their customers, which will make the adoption of more advanced technologies, such as AI, BDA, and blockchain, safer.

Barriers to Digital Agility in Kenyan Insurance Firms

Despite the obvious benefits of digital tools and platforms, multiple obstacles prevent the implementation of the idea of digital agility in Kenyan insurance companies. Digital illiteracy of both consumers and employees has been listed among the key obstacles in the literature. Gikandi et al. (2022) established that one of the challenges to using digital tools effectively in the insurance industry is digital literacy. Despite the record-high mobile penetration in Kenya, the majority of the consumers and, more importantly, the rural consumers lack the required skills to engage with the digital platforms. Such a digital divide thwarts the effectiveness of insurance services via mobile devices and hampers the emergence of digital insurance services in underserved areas. In addition, it is not possible to ensure that employees of traditional insurance companies are properly trained to work with the most recent digital technologies, which makes the incorporation of digital tools into their everyday activities even harder. As Gikandi et al. (2022) pointed out, the solution to the problem is to implement specific digital literacy interventions that can empower consumers and employees and enable them to learn how to better utilize digital platforms. The other major obstacle to digital agility in Kenyan insurance companies is the use of legacy systems. The software employed by many Kenyan insurers remains outdated and cannot be connected to newer digital technologies, including AI, big data analytics, and blockchain. Njiru and Mugo (2021) listed this problem as one of the main challenges to digital transformation in the Kenyan insurance market. The large expenses involved in updating the old systems and training employees to operate these new systems are a big burden to the companies, especially to the small ones, which might have minimal resources.

These findings also resonate with the fact that the World Bank (2019) noted that in inadequate digital infrastructure and the high costs of digital technology adoption are important obstacles to the digital transformation of sectors with digital technologies such as insurance in emerging economies. The most challenging issue to full digital agility implementation is the expense of upgrading old systems and persuading employees to be prepared to embrace new technology, and is the major concern of many insurers. Despite the regulatory support that has played a significant role in helping digital agility, the concern that still warrants to be addressed is the pace of regulation. According to Kungu and Ngugi (2023), the majority of insurers in Kenya do not fully embrace emerging technologies like AI and blockchain due to the uncertainty of whether they are regulated or not. Though a regulatory sandbox

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has been introduced by the IRA, there are no clear and comprehensive regulations governing how these technologies are used, thus an atmosphere of uncertainty is created. Such regulatory ambiguity means that insurers do not know what the law should entail when adopting and experimenting with such technologies. According to Kungu and Ngugi (2023), more specific regulations would give insurers the confidence to commit to digital innovations completely and experiment with new solutions. In the absence of explicit instructions and guidelines, the threat of non-adherence or lawsuits hinders the implementation of innovative technologies to provide the company with an opportunity to take full advantage of the capabilities of digital agility.

Performance Outcomes of Digital Agility

It has been proved that digital agility can greatly improve the performance of Kenyan insurance companies. Omondi and Ochieng (2022) demonstrated that the turnaround time associated with claims handling and underwriting has declined due to the digital-based technologies, namely automation and AI. This is because automation of routine tasks can enable insurers to handle claims faster, leading to reduced operation expenses and better service delivery. This result is consistent with the findings of Teece (2018) who observed that companies able to utilize digital technologies to automate and streamline operations can save a lot of money and improve operations. Use of AI in claims processing, underwriting, and customer services have been found to reduce human error and improve accuracy that allow firms to serve their clients in a better manner. Also, digital tools will allow insurers to expand their operation without correspondingly rising costs, resulting in achieving higher efficiency levels throughout the value chain. Besides operational efficiency, in Kenya, digital agility has played an influential positive role on customer satisfaction and financial inclusion within the insurance sector. Njiru et al. (2023) found that insurers that adopted digital technologies such as mobile applications to handle claims and manage policies could offer more convenient, transparent, and accessible services. They also resulted in greater customer satisfaction, as customers can now contact their insurers using their own words, being more responsive and customized. Financial inclusion has been improved by increased utilization of mobile-enabled microinsurance products such as ones offered by M-Pesa. These mobile insurance products have helped low-income and rural population to access insurance products that could not be accessed before. World Bank (2020) also notes that it is possible to enhance financial inclusion through the use of digital platforms, which provide more accessible and affordable financial services, and one example is Kenya that has effectively used mobile technology to promote the uptake of insurance.

Kenyan insurance companies have achieved competitive status through digital agility as well. In their research, Ochieng and colleagues noted that a digitally agile insurer could roll out new products such as pay-as-you-go motor insurance and mobile health insurance that would be valuable to younger and more digitally savvy consumers. These inventions have helped companies to stand out in an already saturated market, capturing new customers and securing a competitive advantage. It has also allowed the insurers to enter new untapped markets due to the online agility hence expanding their customer base and market share. Insurers can become more competitive and maintain growth in a changing market by providing special products that satisfy the customers' needs and wants of a particular market segment.

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Discussion of Findings

The findings of this systematic review suggest that digital agility has emerged as a critical aspect of transforming the Kenyan insurance industry. Digital agility is the ability of organizations to utilize digital technologies to innovate, adapt, and improve their operational efficiency, competitiveness, and customer interaction. As detailed in the results, the insurance industry in Kenya has achieved a lot in adopting digital transformation, fueled by several enablers, albeit with a lot of significant hurdles. These findings have been viewed in this discussion in light of how the industry is being defined by digital agility, implications of digital agility in terms of performance outcomes, and challenges still inhibiting full adoption of digital agility.

Enablers of Digital Agility in Kenyan Insurance Firms

The dramatic enhancement of the Kenyan digital infrastructure is one of the most vital digital agility enablers of Kenyan insurance companies. The creation of digital platforms can succeed because there has been a high rate of mobile and internet penetration in Kenya. Mobile technology and especially mobile money services such as M-Pesa have played a key role in promoting financial inclusion and have transformed the insurance companies' environment. The innovative approach of reaching rural and underserved communities via mobile-based interventions, as highlighted by Kariuki et al. (2021) has, indeed, changed the game, given that it has enabled the delivery of products to previously underserved customer segments. This is an important lesson for other emerging market economies, as mobile technology will help insurers overcome geographic remoteness, low financial literacy and trust, which are typically barriers to the adoption of insurance products. Moreover, the advent of cloud computing has provided Kenyan insurance companies with the flexibility to scale with ease and at a cost-effective rate. Managing vast amounts of data, providing improved customer service, and the ability to implement digital tools with minimum initial investment of capital is changing the way firms are run. Cloud-based solutions help save operational costs and enhance service delivery, as Basha (2022) emphasized, and enable insurers to be quick and respond to market shifts. This is consistent with other trends that have been taking place globally, with cloud-based solutions helping companies in unstable markets like Kenya be responsive, agile and competitive. Small- and medium-sized insurance companies have found the affordability and scalability of cloud technologies to be especially valuable, since they may otherwise be challenged by the high costs of infrastructure.

Another driver to agile digitally is regulatory support. It is especially commendable that the Insurance Regulatory Authority (IRA) of Kenya has been proactive in the development of a regulatory sandbox. The sandbox will enable insurance companies to test out innovative technologies including AI and blockchain without the risk of non-compliance with regulations. Mwangi et al. (2020) list the possibility to test new technologies in a controlled environment as one of the methods of innovation that can help reduce the risk of the issue of regulatory uncertainties. This foresight in regulation is essential to promote experiments by insurers with new digital tools and their implementation into the product. But, according to Kungu and Ngugi (2023), alongside the sandbox as the possibility to test the latest technologies, the pace of regulation change to fully adopt new technologies such as AI and blockchain is still an ongoing issue. Leadership

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and organizational culture is another enabler that has been identified in literature. The role of leadership commitment towards digital transformation cannot be overemphasized. Visionary leaders in the company could help create an innovation-oriented culture that would make it easier to make the shift to using digital solutions (as observed by Mutua et al. 2023 and Vial 2019). With the Kenyan Insurers, the companies that have taken the digitalization step have done so due to the efforts of their leadership teams who have championed the need to embrace digitalization and this has encouraged employees and other stakeholders to welcome change. This organizational preparedness is needed to promote an agile organizational work environment in which digital tools can be introduced without problem.

Having data protection as part of the digital strategies, insurance companies will have the opportunity to adopt mobile and online platforms, offer personalized services, and innovate on products without affecting privacy or regulatory standards, for example, pay-as-you-go motor insurance and mobile health insurance (Njiru et al., 2023). Additionally, data protection systems will help minimize regulatory uncertainty, which has been found as a barrier to digital adoption by Kenyan insurers, by explaining obligations and liabilities that apply to digital operations. This provides a friendly atmosphere of experimentation in innovation sandboxes and cooperation with InsurTech partners, which leads to agility and faster adoption.

Barriers to Digital Agility in Kenyan Insurance Firms

Despite these enablers, there are many barriers to digital agility adoption in Kenyan insurance firms. One of the greatest of these barriers is the low degree of digital literacy. Gikandi et al. (2022) argue that even with the high mobile penetration in Kenya, majority of the consumers in the rural settlements especially lack the necessary skills to access online insurances. Mobile phones are everywhere but the challenge is to make sure that consumers have full access to mobile-based insurance services. This is especially essential with products like microinsurance, which need mobile platforms to distribute the product. Innovative digital literacy initiatives that meet the needs of rural people, as recommended by Gikandi et al. (2022), would go a long way in closing this gap and making digital tools accessible and usable by everyone.

The second barrier to digital agility is that most Kenyan insurance companies operate on archaic systems. With the increasing access to digital technologies, numerous companies remain stuck using outdated software and systems that cannot support newer technologies like AI, big data analytics and blockchain. These legacy systems, as Njiru and Mugo (2021) find, are quite a challenge, both in cost and time. Processes that require resources to be used include modernization and retraining of the workforce, particularly when the company has a small budget. Modernization of old systems is also an economic barrier to going digital that cannot be taken lightly since it becomes difficult to compete with large digitally agile companies. This is so because the current insurers may not even have the potential to take advantage of the new technologies since they operate these old systems, which limits them to innovating and introduce more customer-oriented products.

Furthermore, the other obstacles influencing digital agility in Kenyan insurance companies include the slow rate of regulatory adaptation. Although the IRA has achieved something with the regulatory sandbox, the decisions regarding the legal status and impacts of new technologies

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like AI and blockchain remain unclear. Most insurance companies are reluctant to wholly adopt such technologies because of fear of breaking the rules. The absence of explicit and overall rules governing the usage of such technologies leads to a state of confusion, making it unlikely that companies will invest in digital technologies. Stricter regulatory frameworks would give insurers the freedom to innovate and use new technologies, thereby ensuring more rapid digital transformation of the industry.

Performance Outcomes of Digital Agility

It cannot be disputed that digital agility positively influences the performance of Kenyan- based insurance companies. Implementation of digital technologies has been associated with evolutionary gains in operational efficiency, consumer satisfaction, financial inclusion, and competitiveness. Enhanced efficiency in operations has been one of the most remarkable results of digital agility. Kenyan insurers have used automation, AI, and cloud-based solutions to streamline business operations, reduce the turnaround time to resolve claims, and reduce operational costs. Omondi and Ochieng (2022) found insurers who utilized digital tools reduced claims processing and underwriting time by over 30. This is in line with Teece (2018), who identified that companies that use digital technologies to automatize routine processes are able to save significant amounts of money and improve their efficiency. Cost saving coupled with increased service delivery is one of the key competitive advantages enjoyed by digital agile firms in Kenya, which is in a me-too insurance market. Besides improvement in operations, the concept of digital agility has been reported to improve customer satisfaction. Insurance services have become easier, clearer, and more efficient thanks to the integration of mobile applications to process claims, manage policies, and communicate with customers. Embracing digital tools in their operations, as Njiru et al. (2023) observed, enabled the insurers to enjoy greater customer satisfaction due to the convenience of customer service and support. Additionally, mobile-enabled microinsurance, such as that being offered through M-Pesa, has played a crucial role in the process of financial inclusion, particularly of the low-income and rural population. These mobile platforms ensure insurance products become more affordable and more accessible, thereby dealing with the problem of financial exclusion.

Digital agility has also enabled Kenyan insurance firms to become competitive. Through digital transformation, insurers will be able to provide innovative products that meet the demands of digitally savvy consumers. This idea is geared towards the conclusions of one of the studies conducted by Ochieng et al. (2021) because, according to it, the insurers will be prepared to artificially recreate the principle of simulating something unusual (pay-as-you-go motor insurance, pay-as-you-shop insurance, etc.) and, will not hesitate to embody, the concept of the digital agility and, therefore, the focus on younger and more technologically- fit buyers. Such products have enabled the companies to attain a competitive advantage through meeting the changing demands of their consumers. Moreover, through the provision of products that serve underserved and niche markets, digital agility has also provided an entry to new markets, both in geographic and demographic terms.

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Conclusion, Implications, and Recommendations

This paper aimed to understand the enablers, barriers, and performance outcomes of agility with respect to digital in Kenyan insurance companies, by conducting a qualitative systematic review of literature. In line with a doctrinal review of the literature available in 2020 and beyond, the results revealed that Kenya boasts one of the most successful digital infrastructures, which has subsequently most significantly contributed to increasing access and efficiency within the insurance sector due to the prevalence of mobile penetration and mobile money services like M-Pesa (World Bank, 2020; Kariuki et al., 2021). One of the uses of cloud computing in the insurance sector is to facilitate a more flexible and affordable scale of operation (Basha, 2022), and regulatory innovation through the IRA sandbox model has allowed work on experimenting with new technology, including AI and blockchain (Mwangi et al., 2020; World Bank, 2019). The other vital element is the leadership: as has been noted, the more an organization adopts an innovation and agile-based organizational culture, the more receptive it is to digital disruption (Mutua et al., 2023; Vial, 2019). However, there are still some obstacles that have hindered the path of full digitalization. The lack of digital literacy among consumers and employees impedes the access to digital platforms (Gikandi et al., 2022), and the lack of flexibility due to outdated infrastructure and the prohibitive cost of upgrading technological infrastructure limits access to the digital platforms to smaller insurers (Njiru and Mugo, 2021; World Bank, 2019). Furthermore, incompetent regulatory guidelines around new technologies have remained a barrier to use and adoption (Kungu and Ngugi, 2023).

It is against these odds that the positive impacts of digital agility are clear and backed by empirical evidence. In the context of mobile-based services, facilitated by automation and artificial intelligence, insurance companies have saved more than 30 percent of processing time, bringing efficiencies to their processes (Omondi and Ochieng, 2022; Teece, 2018). Besides this, mobile has enabled products that also led to the development of customer satisfaction, financial inclusion, and microinsurance with M-pesa has contributed to reaching even more customers (Njiru et al., 2023; World Bank, 2020). Finally, the innovation of products such as pay-as-you-go motor and mobile health insurance have improved the competitive positioning of the firms in the evolving digital market place (Ochieng et al., 2021; Protogerou et al., 2020).

The study was constrained by its dependence on secondary data and information found in the public domain. The biases, selective reporting, and disproportionate reporting of success stories, coupled with the suppression of failures and challenges within the Kenyan insurance companies, might influence the findings of the research. The lack of access to detailed data at the company level, especially for small-scale and rural insurers, and inconsistencies in the methodological approaches of different studies published in academic journals, institutions, and grey literature further limit the analysis of the research. Given that the digital space is dynamic and constantly changing after the pandemic period, some information might become irrelevant.

The following were the recommendations for the paper,

Future studies must consider collecting primary data using both qualitative and quantitative approaches.

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To achieve the full potential of digital agility in the insurance industry in Kenya, the solution must be a holistic one encompassing change in regulation, change in organization, and change in industry. These are vital areas in the creation of a robust, cutting-edge, and customer-oriented insurance culture.

Regulatory authorities must stop dealing with pilot structures and move to more adaptive regulations and full-scale regulations that can be changed at a rate that corresponds with digital technology change. Though programs such as the sandbox program by the Insurance Regulatory Authority have still given entrepreneurs a good platform to test their innovations, such as artificial intelligence (AI) and blockchain, it is just a start. Next, to develop an effective insurance agile setting, regulators should develop a list of proactive policies they would use to resolve the issue of data privacy, cybersecurity, and ethical use of innovative technologies. This project will not only remove risks but it will also free the minds of the insurers and consumers because they are likely to be open to the use of digital solutions.

Insurers need to ensure that their legacy systems are modernized as a way of improving their operational efficiency and scalability. Cloud computing combined with robot processing automation (RPA) and data analytics can help automate and simplify processes, decrease the number of human interventions, and make faster decisions. To illustrate it, such a cloud-first approach can lead to significant customer satisfaction and productivity.

Another crucial aspect is the advancement of digital abilities between the personnel and the end-user. Digital literacy and the effective use of digital tools can be trained, as well as consumer education can increase interaction with digital platforms. Leadership is essential in this change, and leaders should spearhead digital efforts, purposefully invest in and embed an innovation and learning culture.

A collective effort by all stakeholders in the industry is needed in the quest to become digital agile. Schools, technology companies, and development entities must work together to provide training opportunities to encourage digital and financial literacy, specifically among underserved communities. They can be utilized to close the digital divide and inclusive growth.

At the same time, the primary investment is made in technology infrastructure. The collaboration between the governments and the companies can help to work out the common platform and tools which will help to make the process of implementing the digital quicker and cheaper in the industry. Through sharing of knowledge in forums, workshops, and insurance conferences, the best practices, innovation, and creation of a community of practice aimed at enhancing digital transformation in the insurance sector can be disseminated.

Data protection should be part of digital strategies. Insurers should make sure that they comply with the Kenya Data Protection Act (2019), provide secure platforms with encryption and cybersecurity, and incorporate data protection practices into regulatory sandboxes. Employee training and consumer education on data privacy practices will increase trust, protect sensitive data, and encourage the use of digital insurance services.

Therefore, the Kenyan insurance industry can fully harness the potential of digital agility to positively influence regulatory evolution, drive organizational modernization, and strengthen collaborative efforts across the sector. Besides enhancing customer satisfaction and operational efficiency, this holistic approach will ensure the

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sector becomes a digital pioneer on the African continent.

Ethical Approval

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Conflicts of Interest

The authors declare that there are no conflicts of interest in the conduction or reporting of this research.

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