Chapter 4
Digital Readiness and Organizational Transformation for IoT Adoption in African Enterprises

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ABSTRACT

The Internet of Things (IoT) is transforming business innovation and competitiveness, yet adoption across Africa remains uneven due to a deep digital divide. This review of 44 peer-reviewed studies (2015–2025) examined how digital readiness and organizational transformation shape IoT uptake. Results show that limited broadband, unstable electricity, and weak cloud systems constrain readiness, while skill shortages and poor digital leadership further slow progress. Many enterprises lack the technical capacity, managerial support, and flexibility required for IoT integration. External obstacles include fragmented regulation and scarce finance, though initiatives such as AfCFTA, the Smart Africa Alliance, and fintech programs offer new opportunities. Effective adoption depends not only on access to technology but also on firms' ability to sense, seize, and reconfigure resources. Building agility,

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leadership, innovation culture, and robust infrastructure, underpinned by coherent policy and academia-industry collaboration, is crucial for sustainable IoT-driven growth in Africa.

1. INTRODUCTION

The Internet of Things (IoT) is widely regarded as a game changer for businesses worldwide, and African enterprises are eager to leverage its potential. IoT involves networks of smart devices that communicate and share data to optimize processes across various sectors (Kuaban et al., 2024). From agriculture and utilities to retail and mining, IoT solutions can help African businesses overcome traditional challenges by improving their efficiency and enabling new services. For example, telecommunications initiatives, such as the MTN's dedicated IoT network (spanning 23 countries), aim to equip African entrepreneurs with tools to solve age-old problems in innovative ways (Ndubuaku & Okereafor, 2015). Such technologies promise benefits in critical development areas, such as water management, electricity supply, transportation, and agriculture. However, despite this promise, the adoption of digital technologies like IoT among African firms remains uneven between countries and even within them (Cruz, 2024), meaning that many businesses may not yet be reaping IoT's full benefits. Key barriers, such as high costs and limited infrastructure, persist. Indeed, the costs of hardware, software, and connectivity in Africa are significantly higher than those in other regions, creating hurdles for widespread IoT implementation (Cruz, 2024). This underscores the importance of digital readiness and organizational change for a successful IoT uptake in Africa.

However, achieving value from IoT is not as simple as purchasing sensors or gadgets. It requires enterprises to be digitally ready and undergo internal transformation. In this context, digital readiness refers to the preparedness of an organization (or country) to adopt and absorb new technologies. It encompasses a robust ICT infrastructure, affordable Internet, digitally skilled workforce, supportive policies, and cybersecurity frameworks (Mphale et al., 2024). For instance, a recent review in Botswana examined factors such as e-commerce legislation, ICT education, infrastructure investment, and cybersecurity as components of technological readiness for IoT (Mphale et al., 2024). These foundational elements determine whether IoT innovations can be deployed effectively. Similarly, organizational transformation, often referred to as digital transformation, plays a critical role. The introduction of IoT may require companies to reinvent their business processes, update their skill sets, and foster an innovation-friendly culture (Kuaban et al., 2024). Scholars emphasize that understanding the steps and background needed for such transformation is crucial in an ICT-dependent world, and companies must be adequately prepared