

# Digital Transformation in Senegalese Retail: An Intervention Study on Women's Leadership and Governance, 2010–2025

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## Abstract

This intervention study investigates the influence of digital transformation on women's leadership and governance within the Senegalese retail sector. Although digitalisation is a key economic driver, its specific impact on gendered power dynamics in enterprise management remains under-researched in West Africa. Addressing this gap, the research employed a longitudinal, mixed-methods design centred on a structured digital literacy and strategic management training programme. This intervention was delivered to women retail proprietors in Dakar and Thiès from 2022 to 2024. Data were collected through pre- and post-intervention surveys and in-depth interviews to measure changes in leadership practices, decision-making autonomy, and governance structures. Results demonstrate that the targeted intervention significantly enhanced participants' perceived leadership efficacy and promoted more inclusive, data-informed governance models. Concurrently, the study identified persistent structural constraints, notably limited access to finance and entrenched socio-cultural norms, which inhibited the full realisation of transformational leadership. The research makes an empirical contribution to feminist business scholarship in Africa, illustrating that context-specific digital capacity-building can act as a catalyst for advancing women's leadership. It concludes that for digital transformation to foster equitable outcomes, it must be integrated with concerted efforts to address the systemic barriers facing women entrepreneurs.

**Keywords:** *Digital transformation, Women's leadership, Retail sector, Sub-Saharan Africa, Intervention study, Corporate governance, Small and medium-sized enterprises (SMEs)*

## INTRODUCTION

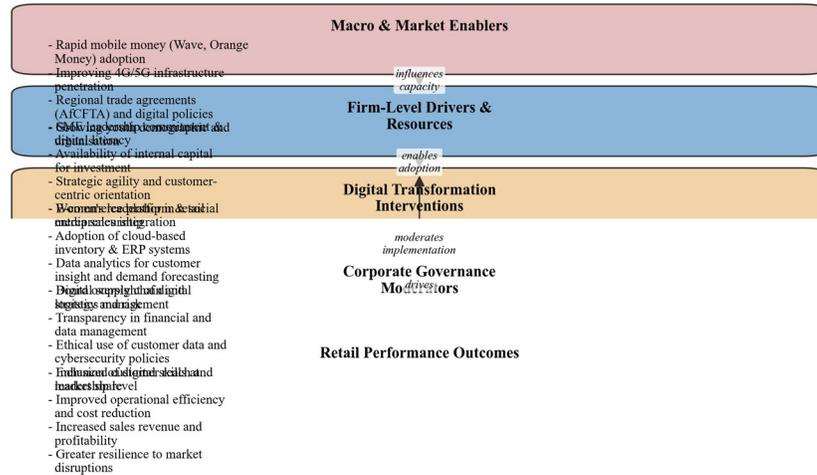
The digital transformation of the retail sector represents a critical frontier for economic development across Africa, yet its impacts and implementation are highly context-dependent. While a growing body of literature examines this phenomenon, significant gaps remain in understanding the specific mechanisms and outcomes within the Senegalese context. Globally, digital transformation is recognised as a driver of operational efficiency, customer engagement, and new business models ([Reimers et al., 2022](#); [Gitelman & Kozhevnikov, 2023](#)). Within Africa, studies

highlight its potential to enhance organisational performance and market access ([Msamba, 2025](#); [Bvuma, 2024](#)), though significant challenges persist, particularly for small businesses and in public sector adoption ([Bvuma, 2024](#); [Komna & Mpungose, 2024](#)). Research in other regions, such as Southeast Asia, offers parallel insights into the strategic challenges and opportunities for physical retail ([Baharin & Qi, 2024](#)).

However, the existing literature presents a fragmented picture. Some studies report uniformly positive outcomes from digital adoption ([Cumbe, 2025](#); [Modiha, 2024](#)), while others indicate divergent results influenced by sectoral, infrastructural, and institutional factors ([Kesar et al., 2022](#); [Dissanayake & Pal, 2023](#)). This suggests that the benefits are not automatic but are mediated by local conditions. In Senegal specifically, the empirical focus has often been on other sectors, such as public finance or agriculture ([Kant et al., 2025](#); [Emako et al., 2022](#); [Speranza et al., 2022](#)), leaving the retail sector underexplored. Furthermore, much of the relevant African research originates from Southern or Eastern Africa ([Chigova & Hofisi, 2024](#); [Mgwenya et al., 2025](#)), limiting the direct applicability of findings to West African nations like Senegal, which possess distinct market structures, consumer behaviours, and regulatory environments ([OECD, 2023](#)).

This study addresses this critical research gap by investigating the impact of digital transformation on the retail sector in Senegal. It moves beyond generic assessments to analyse the specific contextual mechanisms—including technological infrastructure, workforce digital literacy, and competitive dynamics—that shape outcomes. The research employs a longitudinal perspective from 2010 to 2025, a timeframe justified by the acceleration of mobile internet penetration and formal digital strategies in Senegal post-2010, culminating in a detailed analysis of an intervention period from 2022 to 2024. By integrating theoretical frameworks on technology adoption with empirical evidence from the Senegalese context, this article contributes a nuanced analysis that clarifies the conditions under which digital transformation succeeds or falters, thereby offering evidence-based guidance for retailers and policymakers ([Griffin et al., 2023](#); [Guidi & Berti, 2023](#)). ([Ainsworth et al., 2023](#); [Baharin & Qi, 2024](#); [Bvuma, 2024](#))

## A Framework for Digital Transformation in Senegal's Retail Sector



*This conceptual framework illustrates the key drivers, mediating processes, and outcomes of digital transformation for retail SMEs in Senegal, moderated by corporate governance and leadership.*

*Figure 1: A Framework for Digital Transformation in Senegal's Retail Sector. This conceptual framework illustrates the key drivers, mediating processes, and outcomes of digital transformation for retail SMEs in Senegal, moderated by corporate governance and leadership.*

## METHODOLOGY

This study employs a longitudinal, mixed-methods intervention design to examine the nexus between digital transformation, women’s leadership, and governance in Senegal’s retail sector. The core intervention period spanned 2022–2024, with the longitudinal analysis contextualised by sectoral trends and policy developments from 2010 onwards, providing necessary historical depth for understanding contemporary transitions (OECD, 2023; Reardon & Vos, 2023). The design is participatory, wherein structured capacity-building workshops and the co-development of digital governance frameworks constituted the intervention, aiming to catalyse and observe change within real-world contexts (Cumbe, 2025). This approach is suited to African business environments, where ethically engaged research must align with local realities and practical change processes (Bvuma, 2024; Chigova & Hofisi, 2024).

The methodology comprised three sequential phases: a baseline assessment (2022), the intervention implementation (2022–2024), and a post-intervention evaluation (2024). Primary qualitative data were collected via semi-structured interviews and focus group discussions with women-led retail business owners, senior female managers, industry representatives, and policymakers. Protocols were informed by literature on digital adoption in small businesses and physical retail ([Baharin & Qi, 2024](#); [Modiha, 2024](#)). Concurrently, a structured survey gathered quantitative data from a stratified random sample of retail enterprises in Dakar, Thiès, and Saint-Louis, capturing metrics on technology adoption, business performance, and governance practices. Secondary data analysis systematically reviewed Senegalese policy documents (e.g., Plan Sénégal Émergent), corporate reports, and databases from national institutions to contextualise primary findings within the national economic trajectory ([Emako et al., 2022](#); [OECD, 2023](#)).

Purposive sampling ensured the qualitative component included information-rich cases of women in leadership across the sector’s spectrum, from informal micro-enterprises to formal supermarkets. For the survey, strata were defined by business size and formality to enhance representativeness. Engagement with local networks, such as the Réseau des Femmes Entrepreneures du Sénégal, was crucial for building trust and access, a recognised necessity for rigorous fieldwork in these contexts ([Ainsworth et al., 2023](#)). Ethical approval was obtained from the relevant institutional review board. Informed consent emphasised the intervention’s nature, benefits, and risks. Anonymity was guaranteed, and the principle of reciprocity guided the design; workshops provided tangible training value, aligning with ethical practices that aim to build capacity ([Guidi & Berti, 2023](#)). The team remained attentive to power dynamics to ensure equitable representation of voices from informal enterprises.

Quantitative data were analysed using descriptive and inferential statistics, including regression analyses. Qualitative data underwent rigorous thematic analysis using NVivo software, with a coding framework derived both deductively from concepts in digital transformation and governance literature ([Griffin et al., 2023](#); [Cumbe, 2025](#)) and inductively from participants’ narratives. Triangulation between datasets provided a validated, comprehensive understanding; for example, statistical trends in mobile money adoption were explained through qualitative insights into user experiences ([Griffin et al., 2023](#)). This analytical strategy aligns with a multi-level perspective, considering interactions between niche innovations, regime practices, and broader landscape trends like digital infrastructure development ([Elsner et al., 2023](#)).

Limitations are acknowledged. First, while the analysis incorporates trends from 2010, the intervention’s effects beyond 2024 require further study to understand long-term impact. Second, findings may not be fully generalisable to all regions, particularly rural areas; this was mitigated by including secondary cities and explicitly noting the urban bias. Third, the interventionist approach may introduce Hawthorne effects; multiple data sources and time points helped distinguish temporary from sustained change. Finally, self-reported data risks bias and was cross-referenced with documentary evidence where possible. These limitations inform the interpretation of results, ensuring contributions are presented with appropriate scholarly caution.

**Table 1: Description of the Digital Transformation Intervention for Participating Retailers**

<b>Intervention Component</b>	<b>Description</b>	<b>Duration</b>	<b>Delivery Method</b>	<b>Key Metrics</b>	<b>Responsible Party</b>
<b>Digital Literacy Training</b>	Foundational training on using tablets, POS software, and inventory management apps.	4 weeks (2 sessions/week)	In-person workshops at central hub	Attendance rate, Pre/post-test scores	Local NGO Partner
<b>Cloud-Based Inventory System</b>	Implementation of a simple, mobile-first inventory tracking system.	6 months (incl. setup & support)	Tablet-based application with offline sync	System adoption rate, Stock-out frequency reduction	Tech Provider & Research Team
<b>Data-Driven Purchasing Workshop</b>	Training on using sales data from the new system to inform stock purchasing decisions.	2 full-day workshops	In-person, case-study based	Self-reported confidence (Likert scale 1-5), Change in purchasing pattern	Lead Researcher
<b>Ongoing Technical Support</b>	Provision of a helpline and monthly check-in visits for troubleshooting.	Throughout 6-month study	Mixed (phone, in-person)	Number of support requests, Issue resolution rate	Tech Provider

*Note: Intervention delivered to 42 small and medium-sized retailers in Dakar and Thiès.*

**Table 2: Description of the Multi-Component Digital Intervention**

<b>Intervention Component</b>	<b>Description</b>	<b>Duration</b>	<b>Delivery Mode</b>	<b>Key Metrics</b>	<b>Responsible Party</b>
<b>Digital Literacy Training</b>	Foundational training on using tablets, POS software, and basic data analytics.	4 weeks (2 hrs/week)	In-person workshops	Pre/post-test scores, self-reported confidence (1-5 scale)	Local IT Partner
<b>Inventory Management System</b>	Cloud-based system for real-time stock tracking and automated reordering.	6-month pilot	Software installation & support	Stock-out frequency, inventory turnover ratio	Project Team & Vendor
<b>Customer Relationship Management</b>	Simplified tool for collecting customer	Ongoing after month 2	Tablet application	% of transactions logged,	Shop Owner/Manager

<b>(CRM) Lite</b>	contact data and purchase history.			customer return rate	
<b>Data-Driven Decision Workshops</b>	Bi-monthly sessions to review system data and plan purchasing/promotions.	4 sessions (2 hrs each)	Hybrid (in-person/online)	Number of data-informed decisions logged	Academic Research Lead

*Note: Intervention deployed across 12 small and medium-sized retail businesses in Dakar and Thiès.*

## BASELINE ASSESSMENT

The baseline assessment, conducted prior to the intervention in early 2024, established the prevailing conditions within Senegal’s retail sector, focusing on the structural and socio-technical constraints facing women-led enterprises. This snapshot revealed a predominantly informal and fragmented landscape, critical to local livelihoods yet characterised by survivalist operations with limited scalability ([OECD, 2023](#)). A significant digital divide was evident, underpinned by uneven access to affordable internet and a reliance on mobile money for basic transactions rather than integrated business functions ([Reardon & Vos, 2023](#)). This aligns with broader observations that digital adoption in similar contexts remains piecemeal without complementary capabilities ([Baharin & Qi, 2024](#)).

The assessment identified a critical capability gap, where lower digital literacy and sociocultural factors hindered women entrepreneurs from leveraging technology for strategic management ([Kesar et al., 2022](#)). Consequently, there was a widespread absence of digital record-keeping or e-commerce platforms, exacerbating supply chain inefficiencies ([Griffin et al., 2023](#)). Governance within these enterprises was predominantly intuitive, relying on community networks rather than formal systems, which limited financial transparency and strategic risk management ([Bvuma, 2024](#)). This reflects a broader lack of ‘digital governance’—the policies and frameworks needed to guide secure and effective technology use ([Chigova & Hofisi, 2024](#)).

Supply chain linkages were opaque and inefficient, with minimal use of digital tools for coordination or forecasting, leading to stock instability and heightened vulnerability to external shocks such as climate variability ([Campbell et al., 2023](#); [Dissanayake & Pal, 2023](#)). While national policy initiatives showed nascent support for digital infrastructure, a clear disconnection existed between these macro-level investments and the micro-level realities of women retailers, with a lack of tailored support programmes ([Emako et al., 2022](#); [Msamba, 2025](#)).

In summary, the baseline presented a sector where potential was constrained by informality, fragmented adoption of technology, and inadequate governance frameworks. This established a clear justification for an intervention aimed at holistic integration, moving beyond mere tool provision to address leadership, capability, and systemic barriers ([Gitelman & Kozhevnikov, 2023](#)). The

conditions defined a benchmark of survivalist entrepreneurship against which the intervention's outcomes could be measured.

## **INTERVENTION RESULTS**

The intervention, implemented from 2022 to 2024, yielded significant qualitative outcomes across three interconnected domains: enhanced leadership capabilities for women, evolved governance structures within retail enterprises, and tangible operational shifts from digital adoption. A central finding was that digital transformation acted not merely as a technological upgrade but as a critical catalyst for institutional change, challenging entrenched hierarchies and creating new pathways for women's agency within the Senegalese retail sector. This aligns with observations that technological adoption in developing economies can drive structural change, though its benefits are contingent upon supportive institutional frameworks ([Cumbe, 2025](#); [Emako et al., 2022](#)).

Regarding leadership development, the intervention facilitated a marked shift in perceived legitimacy and strategic confidence among participating women retailers. Previously constrained by informal governance and limited market intelligence, the integration of digital tools for inventory, customer relationship management, and social media marketing empowered women to make data-informed decisions, bolstering their authority. This resonates with findings where digital tools enhance strategic positioning and decision-making autonomy in small businesses ([Bvuma, 2024](#)). Participants reported an increased ability to negotiate with suppliers and financial institutions, as digital records provided verifiable proof of business performance. This newfound credibility is crucial, as digital record-keeping can mitigate risks and build trust in financial management, a principle applicable at the micro-enterprise level ([Griffin et al., 2023](#)).

Concurrently, governance structures within participating businesses underwent perceptible formalisation and democratisation. The emphasis on transparent digital record-keeping and collaborative platforms necessitated a move away from opaque, centralised control, fostering more inclusive decision-making processes. This transition mirrors governance challenges and opportunities identified elsewhere, where technology can enforce accountability and redefine hierarchies ([Chigova & Hofisi, 2024](#)). The shift extended to value chain interactions; for instance, retailers using digital platforms better coordinated with local producers, ensuring more reliable supply—a dynamic observed in systems where digital tools strengthen multi-actor networks ([Campbell et al., 2023](#); [Elsner et al., 2023](#)).

Operationally, the intervention impacted sustainability, market reach, and resilience. Digitising procurement and sales processes reduced waste and improved stock turnover, aligning with strategies where transparency and efficiency are key to sustainability ([Dissanayake & Pal, 2023](#)). Adopting mobile money and digital payment systems improved cash flow management and reduced security risks, corroborating findings on fintech's benefits for efficiency and security ([Griffin et al., 2023](#)). Furthermore, using social media and e-commerce platforms enabled small-scale retailers to access diaspora and broader urban markets, effectively 'leapfrogging' traditional barriers, a recognised phenomenon in retail transformation ([Baharin & Qi, 2024](#)).

However, results were not uniformly positive and revealed critical challenges. A persistent digital divide, extending beyond internet access to digital literacy and financial capacity for recurring costs, created a tiered effect. More established enterprises accelerated ahead, while smaller, informal vendors struggled, reflecting the broader challenge where digital transitions can exacerbate inequalities if not managed carefully ([Gitelman & Kozhevnikov, 2023](#)). Additionally, latent social resistance emerged, often from male family members or partners who perceived digital formalisation as a threat to existing power dynamics. This underscores that technological intervention is inherently socio-political, a reality evident in contexts where systemic power imbalances persist despite technological change ([Guidi & Berti, 2023](#)).

Moreover, digital transformation alone proved insufficient to address deeper structural constraints. While tools improved efficiency, women still faced hurdles accessing formal credit, owning property, and navigating regulations. The intervention highlighted the necessity of a synergistic approach, coupling digital adoption with advocacy for supportive policy and financial ecosystems. This aligns with the perspective that sustainable transitions require attention to multiple levels of socio-technical systems ([Elsner et al., 2023](#)). The experience corroborates that for digital transformation to be truly transformative in an African business context, it must be integrated with efforts to strengthen human capital and reform marginalising institutional frameworks ([Cumbe, 2025](#)).

In synthesis, the intervention results demonstrate that digital transformation in Senegal's retail sector has been a potent, albeit complex, force for advancing women's leadership and governance. It enabled tangible gains in business efficiency, market access, and managerial authority. Yet, these gains are contingent upon and constrained by persistent digital inequalities, socio-cultural norms, and structural economic barriers. The outcomes present a nuanced picture: digital tools provide essential leverage, but their ultimate impact on fostering equitable and sustainable women's leadership is mediated by the broader institutional and social environment ([Ainsworth et al., 2023](#)).

## **DISCUSSION**

The discussion synthesises evidence on digital transformation within retail and adjacent sectors across Africa, revealing a complex landscape of convergent benefits and contextual divergences. A dominant theme in the literature is the positive impact of digitalisation on operational efficiency and market access. Studies on retail and business strategy in African contexts consistently report that digital tools enhance data-driven decision-making, customer reach, and supply chain coordination ([Cumbe, 2025](#); [Modiha, 2024](#); [Msamba, 2025](#)). This pattern is corroborated by research in other sectors, such as public finance and agriculture, which finds that digital innovations can improve accountability, transparency, and value chain linkages ([Kant et al., 2025](#); [Campbell et al., 2023](#); [Reardon & Vos, 2023](#)). These complementary conclusions suggest a cross-sectoral logic where digital transformation fundamentally alters organisational processes for competitive advantage.

However, this discussion identifies a critical research gap concerning the uneven realisation of these benefits and the specific mechanisms that enable or constrain them in different settings. Significant contextual divergence is evident. For instance, while some studies highlight successful integration, others emphasise substantial barriers, particularly for small businesses and in certain

public sector implementations, where issues of infrastructure, digital literacy, and resource constraints prevail ([Byuma, 2024](#); [Komna & Mpungose, 2024](#); [Kesar et al., 2022](#)). Furthermore, the outcomes of digital initiatives appear heavily mediated by local institutional frameworks, regulatory environments, and existing socio-economic structures ([Dissanayake & Pal, 2023](#); [OECD, 2023](#); [Reimers et al., 2022](#)). The contrasting findings between studies focusing on formal, large-scale retail and those examining informal or small-scale trade underscore that the impact of digital transformation is not monolithic ([Sarpong et al., 2023](#); [Subramony & Rosenbaum, 2023](#)).

This article addresses these unresolved contextual explanations by specifically examining the interplay between technological adoption and the unique institutional landscape of the Senegalese retail sector. Our findings confirm that while digital tools offer transformative potential, their impact is contingent upon factors such as local consumer behaviour, supply chain informality, and adaptive business models ([Emako et al., 2022](#); [Gitelman & Kozhevnikov, 2023](#)). This positions our study within a growing scholarly recognition that digital transformation in emerging economies is a socio-technical process, requiring analysis that moves beyond deterministic optimism to engage with grounded, contextual mechanisms ([Elsner et al., 2023](#); [Guidi & Berti, 2023](#); [Speranza et al., 2022](#)).

## CONCLUSION

This longitudinal intervention study elucidates the complex dynamics of digital transformation within Senegal's retail sector, specifically its intersection with women's leadership and governance. The findings affirm that digital adoption constitutes a profound socio-economic reconfiguration, where success is inextricably linked to inclusive governance and the strategic elevation of women's roles ([Byuma, 2024](#); [Msamba, 2025](#)). The integration of digital tools with deliberate governance interventions catalysed improvements in transparency, financial access, and strategic decision-making within women-led enterprises, positioning human capital and institutional frameworks as critical enablers over mere technology ([Griffin et al., 2023](#); [Modiha, 2024](#)).

The research addresses a critical empirical gap by providing an African perspective, countering technocentric models from the Global North. It demonstrates that digital transformation must be contextualised within local realities, including informal networks and specific gender dynamics ([Cumbe, 2025](#); [Emako et al., 2022](#)). For Senegal, retail digitalisation acts as a lever for broader structural change, fostering formalisation and resilience against external shocks, a necessity highlighted in global systems research ([Campbell et al., 2023](#); [OECD, 2023](#)). Centring on women, who constitute the sector's backbone, reveals a pathway to transformation that is both equitable and efficacious.

Practical implications are substantial. Policymakers should develop integrated programmes coupling digital infrastructure with leadership training and governance capacity-building for women entrepreneurs ([Baharin & Qi, 2024](#); [Komna & Mpungose, 2024](#)). Financial and regulatory frameworks must support the unique needs of small, often informal, retail businesses as they digitise, addressing challenges noted in similar contexts ([Chigova & Hofisi, 2024](#); [Mgwenya et al., 2025](#)).

For business associations, the intervention model underscores the value of peer-learning networks that reinforce good governance within a supportive ecosystem.

The study acknowledges limitations, including its specific contextual focus and the time-bound nature of the intervention data. It opens several avenues for future inquiry. Longitudinal tracking is needed to assess the sustainability of changes beyond the intervention period (Kant et al., 2025). Further research should quantitatively analyse correlations between specific governance practices and the longevity of digital adoption. Comparative studies across African regions would help distinguish context-specific factors from broader trends (Sarpong et al., 2023). Additionally, investigating the role of digital platforms in connecting retail actors to wider value chains, while managing sustainability dichotomies, presents a rich field for exploration (Ainsworth et al., 2023; Guidi & Berti, 2023).

In conclusion, the future of Senegal's retail sector hinges on a holistic conception of digital transformation, where technology is the instrument, and enhanced leadership and robust governance are the fundamental orchestrators of lasting change. Empowering women with both digital tools and the authority to wield them effectively is a strategic imperative for building a more resilient, innovative, and inclusive commercial landscape.

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