Ethiopian Journal of Science and Sustainable Development

e-ISSN 2663-3205 *Volume 12 (1), 2025*

Journal Home Page: www.ejssd.astu.edu.et

Research Paper

Navigating the Digital Landscape: Digital Innovation Readiness in Ethiopia's Financial Sector

Shibiru Ayalew Melesse[1,*], Oliver Scholz[2], Abdi Yuya Ahmad[1]

[1]*Adama Science and Technology University, Adama, Ethiopia*
[2]*Berlin University of Applied Sciences, Germany*

Article Info

Article History:
Received 29 August 2024
Received in revised form 07 October 2024
Accepted 10 October 2024

Keywords:
change management, digital innovation, Ethiopia, financial sector, readiness, technology

Abstract

Digital innovation is critical for financial institutions seeking to remain competitive in today's fast-evolving technological landscape. However, firms in developing countries, like Ethiopia, face significant challenges in preparing for such innovations. This study assessed the readiness of financial institutions in Ethiopia for digital innovation and examined the impact it has on their effectiveness in implementing innovation. Primary data was collected from banks, insurance companies, and microfinance institutions, and analyzed using multiple regression and t-tests of equality between two means. The findings revealed that the overall readiness level of Ethiopian financial institutions is unsatisfactory, regardless of the type of financial institution. Additionally, managers generally perceive their organizations as more prepared for digital transformation than their employees do. These results highlight the need for Ethiopian financial institutions to address internal perception gaps and to improve readiness in underperforming areas to foster a unified approach to innovation. Moreover, policymakers are suggested to prioritize strengthening digital infrastructure, enacting supportive regulatory frameworks, and promoting financial sector digitalization through incentives.

1. Introduction

In the era of digital transformation and intense competition, financial institutions must prioritize the adoption of digital technologies to remain competitive (Martinez-Caro et al., 2020). Embracing digitalization enables firms to streamline operations, enhance customer experience, and adapt to the evolving financial landscape (Pramanik et al., 2019). Moreover, innovative strategies are vital for financial institutions to set apart themselves from new market entrants and attract a broader customer base (Salunke et al., 2019).

Organizational readiness for change plays a critical role in the successful implementation of digital transformation. Lack of preparedness is often a key factor in the failure of large-scale change efforts (Hubbart, 2023). Drawing from Lewin's three-stage model of change, scholars emphasize the importance of unfreezing existing beliefs, fostering a desire for change, and developing a clear vision for the future (Ernest et al., 2020). These strategies prepare organizations for effective change management by aligning internal capabilities with the demands of the external environment.

Readiness for change encompasses the mental and behavioral preparedness of employees to embrace new systems and technologies (Weiner, 2009). It is closely tied to change commitment, which reflects the collective

*Corresponding author, e-mail: shibiru.ayalew@astu.edu.et

https://doi.org/10.20372/ejssdastu:v12.i1.2025.973

determination of organizational members to execute complex changes (Lines, 2004). Successful change efforts require collaborative actions, shared capabilities, and organizational learning, which are critical to enhancing the efficacy of change initiatives (Lokuge et al., 2019). The alignment of shared beliefs, leadership communication, and organizational experiences can significantly influence the effectiveness of such efforts (Weiner, 2009).

For organizations to succeed in technological innovation, significant resource investment is required (Lokuge et al., 2019). However, a number of firms fail to capitalize on emerging digital technologies due to insufficient preparedness (Kiron et al., 2016). Innovations such as artificial intelligence (AI), cloud computing, and the Internet of Things (IoT) offer immense potential; however, it may also pose significant risks if not managed effectively (Urbinati et al., 2020).

In this study, digital technologies refer to innovations such as big data analytics, AI, mobile devices, and cloud computing (Lokuge et al., 2019). These technologies offer cost-effective solutions that are adaptable and that enhance connectivity with stakeholders. Despite these advantages, several companies struggle to fully integrate digital technologies due to organizational challenges (Clausing & Holmes, 2010). Successful implementation requires adjustments across various organizational functions, including resources, staffing, and culture (Lokuge et al., 2019). Furthermore, digital innovations are not proprietary, making it easier for competitors to replicate them, forcing organizations to continuously adapt their strategies to stay competitive (Calvano et al., 2021).

Ethiopia's financial sector is undergoing substantial policy changes, including the introduction of a secondary capital market and the liberalization of the sector to foreign operators (Admasu, 2017). These reforms place incumbent financial institutions, which predominantly rely on traditional banking systems, at a disadvantage compared to potential foreign entrants that operate with advanced digital services. As a result, Ethiopian financial institutions must upgrade their systems and adopt digital innovations to remain competitive in this evolving environment.

Digital innovation, driven by emerging technologies, requires firms to be behaviorally, structurally, and psychologically prepared for change (Lokuge et al., 2019). Organizational readiness for digital innovation is not binary but exists on a continuum, representing a firm's capacity and willingness to adopt new technologies for innovation (Weiner, 2009). This study aims to assess the preparedness of Ethiopian financial institutions for digital innovation, a crucial factor for their success in a rapidly evolving technological landscape (Hund et al., 2021).

Despite the importance of digital innovation, research on its role in enhancing competitiveness in the financial sector, particularly in developing countries, remains limited (Lokuge et al., 2019; Martinez-Caro et al., 2020). Ethiopia, facing a unique set of challenges, is no exception. This study seeks to fill this knowledge gap by examining the readiness of financial firms in Ethiopia to embrace digital technologies and the impact it has on their effectiveness in implementing innovation. The study tried to answer primarily the question "What is the current state of digital innovation readiness among Ethiopian financial institutions?" The findings are supposed to assist domestic financial firms in positioning themselves strategically as the sector opens up to technology based foreign competitors.

2. Materials and Methods

2.1 Target population and sampling strategy

The research employed a survey research design to assess the readiness level of financial institutions to embrace digital technologies and to investigate the impact of this readiness on the effectiveness of innovation implementation. In order to conduct this research, the researchers specifically focused on three institutions that have substantial impact on the financial sector and which play a pivotal role to the overall growth of Ethiopia's economy. Thus, the target population of the study encompassed financial firms operating in Ethiopia; namely, banks, insurance companies, and microfinance institutions. The selection of the target population was conducted with utmost care to warrant a thorough understanding of the financial landscape in the country.

A stratified sampling approach was applied to ensure a representative sample of financial institutions in

Ethiopia; namely, banks, insurance companies, and microfinance institutions. This stratification allowed for proportional representation of each group within the sample, ensuring a balanced reflection of the sector. After stratification, institutions were selected from each group using a proportional and random sampling method, mirroring the population distribution. Additionally, respondents within these institutions were further stratified into managerial and non-managerial staff, with proportional random selection within these strata to capture diverse perspectives.

Thus, a total of 44 financial institutions were selected, including 12 banks, 12 insurance companies, and 20 microfinance institutions. To further enrich the analysis, 165 employees were sampled from these institutions, comprising 55 non-managerial staff, 35 team leaders, 35 middle managers, and 40 top managers. This approach was used to ensure that the findings are representative of the financial industry.

2.2 Data collection methods

The study utilized a self-administered questionnaire for primary data collection, drawing upon a well-established instrument developed by Lokuge et al. (2019). The decision to use this instrument was based on its proven reliability and validity in assessing digital innovation readiness, particularly within organizational contexts. The instrument was originally designed to evaluate the readiness of firms to adopt and implement digital technologies, making it highly relevant to the current research, which investigated digital innovation readiness in Ethiopia's financial sector. By leveraging a previously validated tool, this study ensured consistency in measuring key variables, enabling comparability with prior studies and enhancing the robustness of the findings.

The questionnaire was tailored to fit the specific context of Ethiopia's financial institutions, with minor adjustments to ensure relevance to the local industry environment. The structured format included a series of concise, well-formulated questions aligned with the research objectives. To capture respondents' perceptions, a 5-point Likert scale was employed, ranging from 1 (strongly disagree) to 5 (strongly agree), which allowed for the quantification of attitudes and which facilitated detailed statistical analysis.

In order to enhance the instrument's reliability and validity, the questionnaire was pre-tested on a small sample from the target population. Feedback from the pre-test led to minor revisions, ensuring that the final version was clear and effective in capturing the necessary data. The study also adhered to rigorous ethical standards, ensuring voluntary participation and participant confidentiality throughout the data collection process.

2.3 Measurement of readiness

Research by Lokuge et al. (2019) explored the theory of readiness to identify factors that enable organizations to be prepared for digital innovation. This was achieved by assessing change valence, change efficacy, and contextual factors, resulting in the development of seven sub-constructs and 21 measures to evaluate a firm's readiness. These sub-constructs include resource readiness, IT readiness, cognitive readiness, partnership readiness, innovation valence, cultural readiness, and strategic readiness. Each sub-construct plays a vital role in determining an organization's ability to successfully innovate with digital technologies.

Resource readiness refers to an organization's capacity to adapt and reorganize its resources, including financial, technological, and human resources, to support digital innovation (Jayarao et al., 2024). IT readiness emphasizes on the importance of an organization's IT assets in facilitating digital innovation, with reliable enterprise systems being crucial for innovation potential (Clausing & Holmes, 2010; Sedera et al., 2016). Cognitive readiness is about the knowledge and skills within a company that support digital innovation, highlighting the significance of employee capabilities in tackling unforeseen challenges (Rose et al., 2016; Sedera et al., 2016). Partnership readiness focuses on the openness of external stakeholders to support a company's digital innovation efforts, with partnerships playing a key role in innovation (Nguyen et al., 2019; Abrell et al., 2016). Innovation valence, derived from the concept of change valence, assesses the positivity of stakeholders towards digital innovation, including their attitude, motivation, and empowerment (Pennings, 2022). Cultural readiness pertains to the strength of an organization's values in supporting digital innovation, with organizational culture being a crucial

driver of innovation success (Lokuge et al., 2019; Sun et al., 2019). Strategic readiness involves managerial activities that support digital innovation, including clear communication of strategic goals and procedures, which are essential for successful innovation projects (Koh et al., 2006; Hussain & Papastathopoulos, 2022). Together, the sub-constructs provide a comprehensive framework for evaluating organizational readiness for digital innovation.

Thus, in this study the financial firms readiness was assessed using the seven readiness magnitudes on a Likert scale of 1 to 5 (1=strongly disagree; 5=strongly agree). The resource readiness was measured using flexible financial resources, human resources, and flexible infrastructure resources (Jayarao et al., 2024). IT readiness was assessed through stability of the enterprise system, availability of technological technologies, and stability of the IT infrastructure. Cognitive readiness of organizations was evaluated based on knowledge, skills, and adaptability of employees. Partnership readiness was measured using IT vendor relationship, relationship readiness with management consultants, and readiness for partnerships with customers or vendors. Innovation valence was assessed through attitude of employees, motivation, and empowerment. Cultural readiness was evaluated using sharing of ideas in a connected workplace, decentralization of decision-making culture, and risk aversion (Lokuge et al., 2019). Strategic readiness was measured through clarity of goals, relevance, and strategy communication (Jayarao et al., 2024). Finally, innovation implementation effectiveness was assessed using extent of implementing new ideas, introduction of enough new products and service, and extent of new ideas implemented.

2.4 Data analysis methods

The data collected for the study were analyzed using descriptive methods, including the mean and standard deviations. Moreover, comparisons between two means were conducted using t-tests, and multiple regression analysis was employed to test relationship among multiple variables. The regression model shown in equation (1) was employed to estimate the effect of digital innovation readiness on innovation implementation effectiveness of an institution.

$$IIE_i = \beta_0 + \beta_1(RR)_i + \beta_2(CR)_i + \beta_3(SR)_i + \beta_4(ITR)_i + \beta_5(IV)_i + \beta_6(CogR)_i + \beta_7(PR)_i + \beta_8(GR)_i + \beta_c(FC)_i + \varepsilon \quad (1)$$

where HEi - innovation implementation effectiveness, RR_i - resource readiness, CR_i - cultural readiness, SR_i - strategic readiness, ITR_i - IT readiness, IV_i - innovation valence, $CogR_i$ - cognitive readiness, PR_i - partnership readiness, GR_i - global readiness, FC_i - firm characteristics (e.g., firm size, sub sector type, etc.), β_0 - the intercept; $\beta_1, \beta_2, \beta_3, \ldots, \beta_c$ - the coefficients of the independent and control variables, ε - the error term.

The multiple regression analysis was conducted to assess this relationship, with three models. Model 1 examined the direct effect of various dimensions of digital readiness on innovation implementation effectiveness, Model 2 explored the influence of the type of financial sector (bank, insurance, and microfinance), and Model 3 analyzed the combined effect of both digital readiness and sector type.

3. Results and Discussion

3.1 Sample characteristics

Out of the distributed 165 questionnaires, 128 were returned and used for the study analysis, resulting in a response rate of 77.6%. Among the respondents, 46 individuals were female. The respondents had an average age of 33 years and an average work experience of 7 years. As it is shown in Table 1, the female respondents were younger on average compared to their male counterparts, despite having equivalent work experience. Furthermore, the respondents were drawn from different roles within their respective organizations.

The non-managers fulfill operational roles and the team leaders are supervisors, or lower-level managers. Considering the distribution of respondents across different financial institutions, it is worth noting that exactly half of the total were drawn from banks, accounting for 64 individuals.

Table 1: Sample characteristics (n=128)

		Age			Experience		
		Mean	N	%	Mean	N	%
Sex	Female	32	46	35.9	7	46	35.9
	Male	34	82	64.1	7	82	64.1
Position	Non Manager	32	48	37.5	8	48	37.5
	Team Leader	34	40	31.3	8	40	31.3
	Middle Management	34	24	18.8	8	24	18.8
	Top Management	35	16	12.5	4	16	12.5
Organization	Bank	33	64	50.0	9	64	50.0
	Insurance	35	24	18.8	3	24	18.8
	Microfinance	33	40	31.3	7	40	31.3

3.2 Readiness levels for digital innovations

3.2.1 Digital innovations readiness of the financial sector

The study assessed the readiness of financial firms to innovate using digital technologies across the eight dimensions. The effectiveness of financial firms in implementing innovation was also evaluated, providing an index based on these readiness components. As indicated in Table 2, the overall readiness level of financial institutions for digital innovations, as measured on the 5-point Likert scale, stands at 3.53, which is generally above the average.

Table 2: Readiness of financial firms to innovate with digital technologies

Readiness Dimension	Mean	SD	Max.	Min.
Resource	3.75	0.98	5.00	2.00
Cultural	3.49	0.96	5.00	2.00
Strategic	3.76	1.02	5.00	1.67
IT	3.49	1.11	5.00	1.00
Innovation valence	3.36	1.03	5.00	1.33
Cognitive	3.29	0.88	4.67	1.33
Partnership	3.58	1.11	5.00	1.00
Global	3.33	1.27	5.00	1.00
Effectiveness	3.37	1.10	5.00	1.33
Overall	3.53	0.89	4.76	1.76

Max. - Maximum and Min. - Minimum

Looking at the individual dimensions, strategic readiness was evaluated the highest (3.76), followed closely by resource readiness (3.75) and partnership readiness (3.58). Lokuge et al. (2019) also identified that resource and strategic readiness play pivotal roles in the innovation process, often dictating how well institutions can adapt to technological shifts. The present study result is also consistent with another earlier research, which emphasizes that institutions with clear strategic goals, sufficient resources, and strong partnerships are more likely to adopt digital innovations successfully (Kelly et al., 2017). However, dimensions such as cognitive readiness and global readiness were rated lower, indicating that financial institutions in Ethiopia may lack the global perspective and cognitive framework necessary for fully embracing digital innovations. Similar conclusions were drawn by Arshi & Burns (2019), who found that firms in emerging markets often face cognitive and global challenges due to limited exposure to international best practices.

The findings also reveal that IT and cultural readiness were relatively average (both at 3.49); suggesting that while there is some level of technological infrastructure and cultural support for innovation, these aspects need further improvement. This supports the observations of Hussain & Papastathopoulos (2022), who noted that inadequate IT infrastructure and cultural resistance are significant barriers to digital transformation in financial sectors across developing nations.

The average score for innovation valence (3.36) suggests that while financial firms recognize the potential benefits of innovation, they may not yet fully

understand how to leverage these innovations effectively. This is echoed in the work of Domeher et al. (2014), who found that firms in developing countries often exhibit a passive approach to innovation, adopting technologies without fully integrating them into their business models. The effectiveness of financial institutions in implementing innovations was also average, with a score of 3.37. This reinforces findings from Dutta and Lanvin (2020), who argue that many firms in developing countries struggle with the practical implementation of digital innovations due to weak support systems, limited human capital, and regulatory challenges.

3.2.2 Digital innovations readiness perceptions by gender

The analysis also examined the readiness of the financial sector to embrace digital technologies through the lens of gender (Table 3). Using a t-test of the difference between two means, statistically significant differences were observed between male and female respondents across several dimensions of digital readiness. Female respondents reported lower levels of agreement than their male counterparts on majority of the key dimensions of digital readiness, including resource, cultural, strategic, cognitive, partnership, and overall readiness. These differences highlight an underlying gender gap in how male and female employees perceive their organizations' ability to adapt to and implement digital innovations. This aligns with findings from studies on gender and digital transformation, which indicate that women often perceive organizational preparedness differently due to various structural and cultural barriers they encounter. According to Onozaka & Nemoto (2023), women in the financial sector are frequently underrepresented in technology-driven roles, leading to lower levels of perceived readiness and involvement in digital transformation efforts. Similarly, Kirton and Greene (2016) suggested that, in male-dominated sectors, women often report less confidence in their organizations' strategic and resource readiness due to a lack of inclusion in decision-making processes.

In contrast, no significant differences were observed between male and female respondents regarding IT readiness, innovation valence, global readiness, and effectiveness. This could be attributed to the relatively uniform technological infrastructure availability to both genders within the organizations and a shared understanding of the broad benefits of innovation. As noted by Tripathi & Rajeev (2023), while technological access might be similar, differences in and partnership readiness stem from deeper organizational issues related to gender representation and inclusion.

Table 3: Financial sector readiness to innovate with digital technologies by gender of respondents

Readiness Dimension	Sex				Mean Diff.
	Female		Male		
	Mean	SD	Mean	SD	
Resource	3.43	.90	3.93	0.99	-2.44***
Cultural	3.27	.87	3.61	0.99	-2.28**
Strategic	3.52	.96	3.89	1.03	-2.49**
IT	3.34	1.05	3.57	1.14	-2.2
Innovation valence	3.25	0.93	3.43	1.08	-2.17
Cognitive	3.04	0.86	3.43	0.86	-2.18***
Partnership	3.24	1.05	3.78	1.10	-2.14***
Global	3.11	1.26	3.45	1.27	-1.84
Effectiveness	3.14	1.12	3.51	1.07	-2.07
Overall	3.30	0.84	3.66	0.90	-2.4**

**** p <0.001; **p<0.05; *p<0.1*

These findings suggest that addressing gender-based perceptions in digital readiness is crucial for fostering a more inclusive environment for innovation. Nambisan et al. (2019), underscores the importance of gender diversity in digital transformation. According to them, organizations that actively engage women in their digital innovation strategies often benefit from a broader range of perspectives and more successful outcomes.

3.2.3 Digital innovations readiness level by financial sub-sectors

The readiness of financial institutions to adopt and innovate with digital technologies varies across the three sectors considered in this study (Table 4). The findings depicted that the insurance sector has the highest overall readiness, compared to the microfinance and banking sectors. This sectoral difference can be linked to the varying levels of regulatory pressure, market competition, and organizational structures within the institutions.

In the insurance sector scored highest in most of the dimensions, notably partnership readiness, resource readiness, and strategic readiness. These results align with global trends observed in insurance industries, which have increasingly invested in digital solutions to stay competitive, enhance customer experience, and optimize processes (Susskind & Susskind, 2015). Susanto (2020) also emphasized that the insurance industry is under immense pressure to innovate, driven by digital disruption, which forces firms to reallocate resources and form strategic partnerships with tech firms to remain competitive. This aligns with the higher scores in strategic, resource, and partnership readiness found in the study.

For the microfinance sector ranks second in overall readiness, with strategic readiness being its strongest dimension; the reason can be attributed to the sector's ongoing efforts to leverage technology for financial inclusion, as supported by research on microfinance institutions adopting digital technologies to reach underserved populations (Reeves & Sabharwal, 2023). Studies suggest that while microfinance institutions are keen to innovate digitally, challenges remain in scaling IT infrastructure and forming partnerships, which may explain their lower IT readiness score.

On the other hand, the lowest overall and specific scores in innovation valence and cognitive readiness of the banking sector reflects global findings that traditional banks often face inertia when transitioning to digital platforms. According to Chircu and Kauffman (2000), banks tend to be slower in digital innovation due to legacy systems, organizational silos, and risk-averse cultures. However, banks' heavy investments in IT infrastructure, though somewhat lagging, suggest that this sector is gradually enhancing its readiness for digital transformation (Vial, 2019).

Table 4: Digital readiness of financial institutions to innovate with digital technologies by sector

Readiness Dimension	Organization type					
	Bank		Insurance		Microfinance	
	Mean	SD	Mean	SD	Mean	SD
Resource	3.54	0.96	4.22	0.98	3.80	0.95
Cultural	3.25	0.91	4.17	0.64	3.47	1.01
strategic	3.42	1.12	4.22	0.54	4.03	0.87
IT	3.21	1.12	4.11	0.75	3.57	1.14
Innovation valence	3.04	0.95	3.89	0.85	3.57	1.09
Cognitive	3.08	0.88	3.78	0.64	3.33	0.89
Partnership	3.19	1.23	4.28	0.87	3.80	0.71
Global	3.13	1.13	4.00	1.44	3.25	1.27
Effectiveness	3.15	1.13	3.89	1.00	3.43	1.01
Overall	3.25	0.89	4.10	0.62	3.65	0.86

Similarly, Zalan and Toufaily (2017) noted that while banks are increasingly adopting Fintech solutions, the pace of adoption is often slower compared to more agile institutions like insurance companies and microfinance firms.

The variations in digital readiness across the sectors emphasize the need for tailored digital strategies that reflect each sector's unique needs and capabilities. For instance, insurance firms may capitalize on their existing partnerships to further their digital strategies, while banks must focus on overcoming organizational inertia and improving innovation valence. The microfinance institutions, on the other hand, should prioritize scaling IT infrastructure to support digital transformation initiatives.

3.2.4 Position-based perceptions of digital innovation readiness in the financial sector

Table 5 outlines the perceptions of the financial sectors employees regarding their institution's readiness to innovate using digital technologies, categorized by position: non-managerial staff, team leaders, middle managers, and top management. The results show differences in how the employee groups perceive their institutions' preparedness for digital innovation. The top management, comprising CEOs and senior executives, exhibit the highest confidence in the readiness of financial institutions to embrace digital innovation, with an overall readiness score of 4.29. On the contrary, non-managerial employees express the lowest confidence, with the rate of 3.02. These contrasting perspectives can be attributed to several factors related to organizational communication, leadership visibility, and strategic alignment.

The high level of confidence among top management reflects a common trend where senior leaders are more optimistic about organizational change and innovation. Executives often have a more favorable view of organizational readiness, due to their involvement in strategic decision-making (Kane et al., 2015). Their involvement in resource allocation and partnership development also explains why dimensions such as resource and strategic readiness were rated highly among this group. According to Westerman et al. (2014), top management's role in fostering a culture of innovation and driving digital transformation is crucial, but the trickle-down effect of this vision is often limited, leading to discrepancies in perceptions across different employee levels. Middle managers, including directors and branch managers, scored lower than top management but higher than team leaders and non-managerial staff, particularly in strategic readiness and partnership readiness. They are often seen as the "linchpins" in digital transformation efforts, bridging top-level strategy with operational realities (Wooldridge et al., 2008). Their relatively high scores may reflect their closer involvement in implementing strategies, yet the gap between their perceptions and those of non-managers highlights the challenges middle managers face in translating strategic intent into operational changes.

Table 5: Employees' views on their readiness to innovate with emerging technologies by position

Readiness Dimension	Position							
	Non Manager		Team Leader		Middle Management		Top Management	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Resource	3.28	0.87	4.10	0.89	3.67	1.15	4.42	0.45
Cultural	3.06	0.82	3.73	1.01	3.44	0.96	4.25	0.45
Strategic	2.97	0.97	4.10	0.59	4.17	0.94	4.67	0.42
IT	3.03	1.26	3.73	0.98	3.61	0.95	4.08	0.61
Innovation valence	2.94	1.12	3.57	0.93	3.17	0.67	4.42	0.45
Cognitive	3.03	1.03	3.50	0.68	3.00	0.79	4.00	0.00
Partnership	2.83	0.94	4.10	0.96	3.83	1.16	4.17	0.52
Global	2.88	1.34	3.80	1.32	3.33	1.13	3.50	0.52
Effectiveness	2.92	1.23	3.77	1.05	3.33	0.90	3.83	0.17
Overall	3.02	0.87	3.83	0.76	3.56	0.85	4.29	0.18

Team leaders, including supervisors, demonstrate a moderate confidence level in digital readiness, with an overall score of 3.83. Their scores across various dimensions, such as IT and cultural readiness, suggest that they are more engaged with day-to-day operations, but may not have full visibility into long-term strategic objectives. This is consistent with findings by Besson and Rowe (2012), who noted that middle-tier leaders often face operational challenges when driving innovation due to limited access to broader strategic insights.

The lowest readiness scores came from non-managerial employees, indicating disconnect between them and upper management. Their overall readiness score of 3.02 suggests that non-managerial staff perceive significant gaps in the resources and strategic clarity necessary for digital innovation. This discrepancy can be due to insufficient communication from leadership about digital transformation initiatives or a lack of involvement in decision-making processes. Rogers (2003) highlighted that employee engagement is a critical yet often overlooked factor in successful digital transformation, and when lower-level employees are not aligned with the organizational strategy, innovation efforts can face resistance or implementation delays.

3.3 Test for equality of means for managers and non-managers

The data in Table 6 demonstrates significant differences in perceptions of digital technology readiness between managers and non-managers across various dimensions. The t-test conducted to assess the equality of means for both groups revealed that managers consistently reported higher levels of readiness compared to non-managers, with all differences being statistically at 1% level significant ($p < 0.001$). The results indicate that managers, including top and middle management, perceive higher levels of readiness across all dimensions of digital technology adoption than their non-managerial counterparts. The largest differences in perceptions are observed in strategic readiness (mean difference = -1.26, $p < 0.001$) and partnership readiness (mean difference = -1.20, $p < 0.001$), suggesting that managers feel significantly more confident in the organization's ability to strategically navigate digital transformations and build necessary partnerships to foster innovation.

This perception gap between managers and non-managers aligns with prior research indicating that management often holds a more optimistic view of organizational change initiatives due to their involvement in planning and strategic decision-making.

Table 6: Test for equality of means for managers and non-managers

Readiness Dimension	Position		Mean Diff.[+]	SE	df
	Non-managers	Managers			
	Mean	Mean			
Resource	3.28	4.03	-0.75***	.16710	126
Cultural	3.06	3.75	-0.69***	.16424	126
Strategic	2.97	4.23	-1.26***	.14912	126
IT	3.03	3.77	-0.74***	.19310	126
Innovation valence	2.94	3.62	-0.68***	.17890	126
Cognitive	3.03	3.45	-0.42***	.15618	126
Partnership	2.83	4.03	-1.20***	.17309	126
Global	2.88	3.60	-0.72***	.22387	126
Effectiveness	2.92	3.65	-0.73***	.19005	126
Overall	3.02	3.84	-0.82***	.14589	126

*** p <0.001; **p<0.05; *p<0.1

[+] Tests assume equal variances. Tests are adjusted for all pairwise comparisons within a row of each innermost sub table using the Bonferroni correction.

Kane et al. (2015) found that executives tend to have higher confidence in the institution's digital capabilities, a result of their direct engagement with strategic initiatives. Non-managers, by contrast, may not fully comprehend or see the implementation of these strategies, resulting in their comparatively lower confidence levels.

The statistically significant differences in perception across various dimensions indicate a pressing need for improved communication and collaboration between managerial and non-managerial employees within financial institutions. As highlighted by Rogers (2003), organizational change, particularly during digital transformation, is frequently obstructed by misalignments in perception between leadership and frontline staff. These discrepancies can impede effective implementation, as non-managerial employees play a vital role in executing daily tasks that facilitate the adoption of new technologies. Moreover, the notable gap in strategic readiness points to a potential disconnect in how strategic priorities are communicated across different hierarchical levels. Westerman et al. (2014) stressed on the importance of transparent communication and strategic clarity in ensuring that digital transformation initiatives are comprehended and accepted by all employees, not just management. When non-managers are inadequately informed or engaged in strategic initiatives, it may lead to reduced confidence in the institution's digital preparedness, as reflected in the lower overall readiness scores (mean difference = -0.82, $p < 0.001$).

In addition, the observed gap in partnership readiness suggests that non-managers might not be fully aware of external collaborations or partnerships that could propel digital innovation. The management's higher engagement in these activities likely contributes to the increased confidence levels. Bridging this gap, by ensuring that non-managers are informed about the institution's external efforts, could promote a more unified approach to digital transformation. The analysis of mean differences revealed a significant disparity in digital readiness perceptions between managers and non-managers, emphasizing the necessity for clear and consistent communication throughout the organization. By aligning the perceptions of readiness among all employees, financial institutions can foster a more cohesive environment, which is conducive to digital innovation. Enhancing collaboration and communication, particularly regarding strategic and partnership initiatives, is essential for the effective adoption and implementation of digital technologies across the organization.

3.4 The effect of digital readiness on innovation implementation effectiveness

The study also tried to find out the influence of digital readiness on the ability of financial institutions to effectively implement innovation. The three models of the multiple regression analysis are presented in Table 7. The findings from Model 1 revealed that strategic readiness ($\beta = 0.243$, $p < 0.01$), cognitive readiness ($\beta = 0.272$, $p < 0.01$), and global readiness ($\beta = 0.411$, $p < 0.001$) were significantly and positively associated with the effectiveness of innovation implementation in financial institutions. These results suggest that firms with a well-developed strategy, an organizational culture that supports innovation and a unified perspective are more likely to succeed in digital innovation initiatives. In contrast, the coefficients for other dimensions, such as resource readiness, cultural readiness, IT readiness, innovation valence, and partnership readiness, were statistically insignificant in Model 1. This indicates that while these elements may contribute to overall digital readiness, they do not have a direct and significant impact on the effectiveness of innovation implementation in isolation.

Model 2 tested whether the type of financial sector (bank, insurance, or microfinance) influences innovation implementation. The coefficients for the bank and insurance dummies were not statistically significant, implying that the sector type alone does not play a significant role in determining a firm's ability to implement innovation effectively. This suggests that, irrespective of whether the institution type, the ability to innovate is driven more by internal organizational readiness than by the sector to which the institution belongs.

Table 7: The effect of digital readiness on innovation implementation effectiveness

Dep. Var.: Effectiveness	Model 1	Model 2	Model 3
Resource readiness	-0.0632 (0.0792)		-0.0749 (0.0800)
Cultural readiness	0.0619 (0.0749)		0.0819 (0.0781)
Strategic readiness	0.243** (0.0732)		0.241** (0.0756)
IT readiness	0.0799 (0.0644)		0.0850 (0.0660)
Innovation valence	-0.0881(0.0969)		-0.0836 (0.105)
Cognitive readiness	0.272**(0.0873)		0.278** (0.0888)
Partnership readiness	0.126 (0.0675)		0.147* (0.0705)
Global readiness	0.411***(0.0590)		0.397*** (0.0612)
Bank dummy		-0.288 (0.215)	0.0553 (0.0995)
Insurance dummy		0.456 (0.276)	-0.127 (0.119)
_cons	-0.213(0.176)	3.433***(0.169)	-0.320(0.201)
N	128	128	128
adj. R^2	0.853	0.049	0.854

Standard errors in parenthesis; ***p < 0.001, **p < 0.01, *p < 0.05

Model 3 combined all the dimensions of digital readiness with the sector type. The findings reinforce the results from Model 1, where strategic, cognitive, and global readiness remained significantly and positively associated with innovation implementation effectiveness. Moreover, partnership readiness became marginally significant in this model ($\beta = 0.147$, $p < 0.10$), suggesting that partnerships with external stakeholders may contribute to successful innovation under certain conditions, though its effect is not as strong as other dimensions.

These results underscore the importance of strategic, cognitive and global readiness in fostering an environment where digital innovation can thrive. Strategic readiness, the extent to which an organization has clear and actionable strategies in place, appears to be one of the most critical drivers of innovation implementation success. This finding aligns with the study by Westerman et al. (2014), which highlighted the role of strong strategic planning in facilitating organizational change, particularly in the context of digital transformation. Cognitive readiness, which refers to the mental preparedness of employees and leadership to embrace innovation, also emerged as a key determinant of innovation success. This finding suggests that fostering a mindset that is open to change and innovation is critical for successful implementation. Global readiness, which reflects an institution's over all readiness, was also found to have substantial effect on innovation implementation, emphasizing the importance of all-inclusive perspective in driving innovation within the financial sector. Finally, the marginal significance of partnership readiness in Model 3 suggests that external collaborations may become increasingly important as institutions seek to enhance their innovation capabilities. Establishing partnerships with technology providers, industry peers, or academic institutions can help bridge internal capability gaps, enabling more effective implementation of digital innovations.

4. Conclusion and Recommendations

This study assessed the readiness of financial institutions in Ethiopia for digital innovation and the varying perceptions between managerial and non-managerial employees. The findings revealed that the overall digital innovation readiness of Ethiopian financial institutions is average, with significant disparities in perception between managers and non-managers. Managers generally rated their institutions as better prepared for digital transformation compared to non-managerial employees.

Overall, the results emphasize that while there are areas of relative strength, such as strategic planning, significant work remains to fully prepare Ethiopian financial institutions for successful digital innovation. Addressing the identified gaps in readiness, particularly

by improving cognitive and global capabilities, is crucial for enhancing innovation outcomes and ensuring competitiveness in a rapidly evolving global financial environment. Financial institutions should focus on up skilling and training initiatives that improve employees' digital literacy and cognitive readiness. Additionally, clear and consistent communication between management and non-managerial employees is essential to ensure alignment with the organization's digital transformation initiatives, which will empower employees to contribute effectively to innovation efforts.

In terms of partnerships, financial institutions should actively pursue collaborations with global technology providers and academic institutions to enhance their digital readiness and gain access to cutting-edge digital tools and expertise. These partnerships will also provide external support essential for the successful implementation of innovations.

Relevant policymakers need to strengthen the digital infrastructure that underpins financial innovation. This includes improving internet access, ensuring robust cyber security, and fostering regulatory environments that encourage the adoption of digital innovations. Furthermore, the government should offer regulatory reforms and incentives, such as tax breaks, to stimulate investments in digital infrastructure and lower barriers to innovation in the financial sector.

By measuring readiness, organizations can identify their strengths and weaknesses, guiding investments in key areas and helping prevent the common pitfalls of failed innovation attempts. The study provides benchmarks that can be used to compare progress with competitors and drive resource allocation based on evidence. Despite its contributions, the study focused solely on Ethiopia's financial sector, limiting the generalizability of the findings to other sectors. Additionally, the cross-sectional nature of the research limits insights into how digital readiness evolves over time. Longitudinal studies could offer a deeper understanding of how readiness develops and impacts innovation outcomes. By addressing these limitations, future research can further enhance the understanding of the relationship between digital readiness and innovation implementation in diverse economic contexts.

Acknowledgments: Our sincere appreciation goes to the survey team for their tireless efforts in data collection. We are also deeply grateful to the participants of this study for their valuable time and insights, without which this research would not have been possible.

Reference

Abrell, T., Pihlajamaa, M., Kanto, L., vom Brocke, J. &, Uebernickel, F. (2016). The role of users and customers in digital innovation: Insights from B2B manufacturing firms. *Information & Management, 53*(3), 324-335.

Admasu Shiferaw (2017). Productive capacity and economic growth in Ethiopia. CDP Background Paper No. 34, United Nations, Department of Economics and Social Affairs.

Arshi, T. A., & Burns, P. (2019). Designing an organization for innovation in emerging economies: The mediating role of readiness for innovation. *Organizations and Markets in Emerging Economies*, 10(1), 31-56.

Besson, P., & Rowe, F. (2012). Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *The journal of strategic information systems*, 21(2), 103-124.

Calvano, E., & Polo, M. (2021). Market power, competition and innovation in digital markets: A survey. *Information Economics and Policy*, 54, 100853.

Chircu, A. M., & Kauffman, R. J. (2000). Limits to value in electronic commerce-related IT investments. *Journal of Management Information Systems*, 17(2), 59-80.

Clausing, D., & Holmes, M. (2010). Technology readiness. *Research-Technology Management,* 53(4), 52-59.

Domeher, D., Frimpong, J. M., & Appiah, T. (2014). Adoption of financial innovation in the Ghanaian banking industry. *African Review of Economics and Finance*, 6(2), 88-114.

Dutta, S., & Lanvin, B. (Eds.) (2020). The Network Readiness Index 2020: Accelerating Digital Transformation in a Post-COVID Global Economy. Washington DC: Portulans Institute, WITSA.

Ernest, W.C., David, S.J., Mensah, H.D., & Daniel, L. (2020). Human capital and stock market performance of some selected emerging economies. *Journal of Economics and International Finance*, 12(4):223-232.

Hubbart, J. A. (2023). Organizational change: The challenge of change aversion. *Adminstrative Sciences*, 13(7), 162.

Hund, A., Wagner, H.-T., Beimborn, D., & Weitzel, T. (2021). Digital innovation: Review and novel perspective. *The Journal of Strategic Information Systems*, 30(4), 101695.

Hussain, M., & Papastathopoulos, A. (2022). Organizational readiness for digital financial innovation and financial resilience. *International Journal of Production Economics*, 243, 108326.

Jayarao, G. B., Ray, S., & Panigrahi, P. K. (2024). Information security threats and organizational readiness in nWFH scenarios. *Computers & Security*, 140, 103745.

Kane, G. C., Palmer, D., Phillips, A. N., & Kiron, D. (2015). Is your business ready for a digital future? *MIT Sloan Management Review and Deloitte University Press*, 56(4), 37-44.

Kelly, P., Hegarty, J., Barry, J., Dyer, K. R., & Horgan, A. (2017). A systematic review of the relationship between staff perceptions of organizational readiness to change and the process of innovation adoption in substance misuse treatment programs. *Journal of Substance Abuse Treatment*, 80, 6-25.

Kiron, D., Kane, G. C., Palmer, D., Phillips, A. N., & Buckley, N. (2016). Aligning the organization for its digital future. *MIT Sloan Management Review and Deloitte University Press*, 58(1).

Kirton, G., & Greene, A-M. (2016). The dynamics of managing diversity: A critical approach (4th ed.), Routledge, London, England.

Koh, C. E., Prybutok, V. R., Ryan, S., & Ibragimova, B. (2006). The importance of strategic readiness in an emerging e-government environment. *Business Process Management Journal*, 12(1), 22-33.

Lines, R. J. (2004). Influence of participation in strategic change: resistance, organizational commitment and change goal achievement. *Journal of Change Management*, 4(3), 193-215.

Lokuge, S., Sedera, D., Grover, V., & Xu, D. (2019). Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Information & management*, 56(3), 445-461.

Martinez-Caro, E., Cegarra-Navarro, J. G., Alfonso-Ruiz, F. J. (2020). Digital technologies and firm performance: The role of digital organisational culture. *Technological Forecasting and Social Change* 154, 119962.

Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 103773.

Nguyen, D. K., Broekhuizen, T., Dong, J. Q., & Verhoef, P. C. (2019). Digital readiness: construct development and empirical validation. *Proceedings of International Conference on Information Systems*, 15-18-Dec-2019,Munich, Germany.

Onozaka, Y., & Nemoto, K. (2023). Digital Transformation, Leadership, and Gender Equality: Are They Related?, Economics, Law, and Institutions in Asia Pacific, in: Khare, A. & Baber, W. W.(ed.), Adopting and Adapting Innovation in Japan's Digital Transformation, pp. 155-173, Springer.

Pennings, M.H. (2022). The effect of valence framing on sustainable innovation adoption in the event organising industry. M.A. Thesis, Eindhoven University of Technology, the Netherlands.

Pramanik, H. S., Kirtania, M., & Pani, A. K. (2019). Essence of digital transformation—Manifestations at large financial institutions from North America. *Future Generation Computer Systems* 95, 323-343.

Reeves, M., & Sabharwal, N. (2013). Microfinance and mobile banking for the bottom of the pyramid. *Journal of Enterprising Communities: People and Places in the Global Economy*, 7(2), 155-166.

Rogers, E. M. (2003). Diffusion of Innovations. Simon and Schuster. 5th ed., New York.

Rose, J., Jones, M., & Furneaux, B. (2016). An integrated model of innovation drivers for smaller software firms. *Information & Management*, 53(3), 307-323.

Salunke, S., Weerawardena, J., & McColl-Kennedy, J.R. (2019). The central role of knowledge integration capability in service innovation-based competitive strategy. *Industrial Marketing Management, 76*, 144-156.

Sedera, D., Lokuge, S., Grover, V., Sarker, S., & Sarker, S. (2016). Innovating with enterprise systems and digital platforms: A contingent resource-based theory view. *Information & Management*, 53(3), 366-379.

Sun, S., Lee, P., & Law, R. (2019). Impact of cultural values on technology acceptance and technology readiness. *International Journal of Hospitality Management*, 77, 89-96.

Susanto, A. (2022). Digital transformation of the insurance industry: the potential of insurance technology (insurtech) in Indonesia. Journal of Humanities, Social Sciences and Business, 2(1), 172-180.

Susskind, R., & Susskind, D. (2015). The Future of the Professions: How Technology Will Transform the Work of Human Experts. (Oxford, 2015; online edn, Oxford Academic, 12 Nov. 2020), https://doi.org/10.1093/oso/9780198713395.001.0001

Tripathi, S., & Rajeev, M. (2023). Gender-inclusive development through Fintech: Studying gender-based digital financial inclusion in a cross-country setting. *Sustainability*, 15(13), 10253.

Urbinati, A., Chiaroni, D., Chiesa, V., & Frattini, F. (2020). The role of digital technologies in open innovation processes: an exploratory multiple case study analysis. *R&D Management*, 50(1), 136-160.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144.

Weiner, B. J. (2009). A theory of organizational readiness for change. I*mplementation science*, 4, 67.

Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.

Wooldridge, B., Schmid, T., & Floyd, S. W. (2008). The middle management perspective on strategy process: Contributions, synthesis, and future research. *Journal of management*, 34(6), 1190-1221.

Zalan, T., & Toufaily, E. (2017). The promise of Fintech in emerging markets: Not as disruptive. *Contemporary Economics*, 11(4), 415-430.