ISSN: 2658-8455
Volume 6, Issue 4 (2025), pp. 257-270.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

The role of digitalization in enhancing financial inclusion and performance in Moroccan MFIs

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Disclosure Statement :	Authors are not aware of any findings that might be perceived as affecting the objectivity of this study and they are responsible for any plagiarism in this paper.
Conflict of Interest :	The authors report no conflicts of interest.
Cite this article :	HARKAT, T., EZ-ZARZARI, Z., & HAFID, N. (2025). The role of digitalization in enhancing financial inclusion and performance in Moroccan MFIs. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *6*(4), 257–270. https://doi.org/10.5281/zenodo.15163297
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International Journal of Accounting, Finance, Auditing, Management and Economics - IJAFAME
ISSN: 2658-8455
Volume 6, Issue 04 (2025)

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Abstract:

With digitalization reshaping the financial sector around the globe, MFIs now have a new opportunity, especially in emerging economies, to extend their services to more underserved populations. For this, the study investigates how digital platforms can be leveraged in Morocco to transform the microfinance sector. More specifically, this contribution investigates how digital platforms influence the profitability and financial inclusion of Moroccan microfinance institutions (MFIs). The main objective of the study is to investigate the direct impact that the adoption of digital platforms, their perceived benefits by the client, and the barriers that limit their effective use have on the profitability of Moroccan MFIs. To capture these insights, a survey was used and distributed among MFI clients and staff across urban, semi-urban, and rural areas in Morocco. Using Structural Equation Modeling (SEM), the survey was analyzed, and the results found evidence that digital platforms have a direct influence on Moroccan MFIs. Empirical evidence indicates that the use of digital platforms leads to improved financial inclusion, cost reductions, and more effective services. However, the barriers to using digital platforms, such as digital literacy, security concerns, and lack of access to the internet, have an adverse impact on the profitability and financial inclusion of these institutions. These challenges are particularly pressing in rural areas and must be addressed by the government for digital solutions to reach their full potential. These findings offer actionable insights for Moroccan MFIs and policymakers. By addressing the human and technological barriers to digital adoption, stakeholders can unlock greater financial access for marginalized communities and build more sustainable microfinance systems in Morocco.

Keywords: Microfinance institutions; sustainability; profitability; digitalization; Morocco
JEL Classification: G00, G21, G51
Paper type: Empirical research

ISSN: 2658-8455
Volume 6, Issue 4 (2025), pp. 257-270.

1. Introduction:

Recent advancements in financial technology represent a solid opportunity to enhance financial inclusion (Rifai & AlBaker, 2025), especially in emerging economies (Guo, 2024) such as Morocco. Digital platforms, which include mobile banking apps, digital wallets, and online lending services, can help microfinance institutions (MFIs) expand their outreach while simultaneously reducing both geographic and cost barriers (Dudu et al., 2024; Kouam, 2024; Omowole et al., 2024). In the existing literature, many scholars have found evidence that digital financial services improve access for impoverished populations, such as in the context of sub-Saharan Africa (Voptia & Stukalina, 2024). In addition to this, digitalization plays an important role in enhancing efficiency by automating transactions, reducing reliance on physical branches, and lowering operational costs (Campos, 2024; Wihara et al., 2024). These advantages may ultimately be reflected in both the profitability and overall sustainability of MFIs (Umba et al., 2024).
Building on this global context, it is essential to examine how such digital transformations are progressing within specific national environments such as Morocco. In this economy, leveraging digital finance is increasingly considered a catalyst for expanding the reach of existing financial institutions. While the microfinance sector has been continuously and steadily growing over the past decades, a significant portion of the population remains unbanked. To close this gap, national initiatives have set ambitious targets to support financial inclusion. This includes Morocco’s goal of reaching over half of the adult population before 2030 through the enhanced use of digital financial services. While similar success stories in other countries, such as Kenya, show how digital finance and fintech have made a transformative impact on MFI performance (Suri & Jack, 2016; Vanroose et al., 2020), there is still limited literature investigating how digitalization supports financial inclusion in the North African microfinance sector. Nonetheless, the Moroccan context presents unique research opportunities and challenges in this field, particularly when it comes to studying digitalization in relation to MFI profitability, financial inclusion, customer behavior, and regulatory frameworks.
In addition to these contextual gaps, several practical and structural issues further reinforce the need for focused research on the Moroccan microfinance sector. For instance, despite Morocco's high mobile penetration rate, digital transactions remain uneven across rural and urban populations, largely due to disparities in digital infrastructure and literacy. Additionally, the digital transformation of Moroccan MFIs is not progressing uniformly, as some institutions have adopted integrated mobile platforms and client portals, while others still rely on manual systems. This inconsistency signals that digital transformation is still in its early stages, which may explain the limited empirical evidence linking digitalization to MFIs’ financial performance and inclusion. Furthermore, previous contributions on digital finance have mainly focused on conventional banking or fintech startups, with comparatively less attention paid to microfinance institutions. Given the social mission of MFIs and their role in supporting low-income and underserved clients, it is of prime importance to investigate how digital tools can be used to enhance the performance of these institutions, if not the entire sector.
Equally important is the recognition that the success of digital platforms depends not only on their availability but also on their adoption and active use by clients. While their adoption presents many advantages for MFIs, these institutions must take into account the prevailing issues that constitute critical challenges. Examples of these issues include digital literacy and data security concerns (Babu et al., 2024; Singh & Rao, 2025). For instance, many rural communities in Morocco lack both the necessary infrastructure and digital skills needed to fully leverage financial inclusion (Opoku-Okuampa, 2024). Therefore, simply adopting digital platforms is not sufficient, and understanding their actual impact and the barriers to their use is essential.

Accordingly, this study aims to investigate the extent to which digital platforms contribute to financial inclusion and profitability for Moroccan MFIs. It also explores the barriers that might limit the effectiveness of adopting these digital technologies. This can be formulated in the following research question:

"How do digital platforms influence financial inclusion and MFI profitability in Morocco, and what barriers impact their effectiveness?"

To address this research question, the study employs a survey-based approach to collect data from clients as well as employees of Moroccan MFIs. Using Structural Equation Modeling (SEM), it analyzes the associations between digital platform adoption, the perceived benefits of digital technologies, barriers to digital adoption, financial inclusion, and MFI profitability. Empirical evidence demonstrates how each variable influences the profitability of Moroccan MFIs. Beyond the theoretical insights, this research offers practical recommendations for both MFIs and policymakers. By highlighting key opportunities and challenges, the findings will help institutions in the microfinance sector optimize their digital strategies to improve outreach to the poorest segments of the population and enhance profitability.

The remainder of this paper is organized as follows. Section 2 presents the existing literature review on the topic and formulates the hypotheses. Section 3 presents the data and methodology used. Section 4 presents the empirical findings of the paper, and Section 5 discusses and concludes the paper.

2. Literature review and hypothesis development:

Financial inclusion is key to improving the socioeconomic situation of different countries, such as Morocco, in the context of an emerging economy (Harkat et al., 2023). It guarantees organizations and individuals access to fundamental financial services and products (Demirgüc-Kunt, Klapper, Singer, & Van Oudheusden, 2018). The role of MFIs is to address the needs of populations frequently overlooked by the formal financial system by offering them savings, credit, and insurance services (Cull et al., 2014). Nonetheless, reaching unbanked communities, mainly in remote and rural zones, remains a persistent challenge for MFIs (Ledgerwood, Earne, & Nelson, 2013).

2.1. Influence of digital platforms on financial inclusion and financial performance

A solution has emerged with the development of digital platforms, such as digital wallets, mobile apps, and online banks. These platforms facilitate access to financial services remotely, easing financial inclusion, particularly in regions with limited physical financial institutions (Christen, Rhyne, & Vogel, 2017). Thus, financial inclusion can be attained through digital platforms by overcoming geographical barriers. In addition, digital platforms increase outreach at minimal costs (Aron, 2018). More profits are generated by improving cost efficiency, enhancing cost management, and reducing information asymmetry (Dorfleitner et al., 2022). Serving a greater number of customers at lower costs results in operational efficiency and financial stability (Hasan, Schmiedel, & Song, 2012). Accordingly, the following hypotheses are proposed:

- ***H1: Digital platform adoption positively influences financial inclusion.***
- ***H2: Digital platform adoption positively impacts MFI profitability.***

2.2. Perceived benefits of digital platforms

Digital platforms offer various benefits, such as accessibility, time savings, and convenience. The accessibility and ease of use of digital platforms significantly improve customer attitudes (Hasan et al., 2024) and satisfaction (Santhosh Kumar K. et al., 2024). This, in turn, encourages the continuous utilization of these services and enhances financial inclusion (Klapper, Lusardi, & Panos, 2013). Consequently, the perceived benefits of these platforms are likely to promote

ISSN: 2658-8455
Volume 6, Issue 4 (2025), pp. 257-270.

financial inclusion. Moreover, perceived benefits increase engagement and loan repayments, which improves profitability (Aron, 2018). Based on this, the following hypotheses are posited:

- ***H3: Perceived benefits of digital platforms positively influence financial inclusion.***
- ***H4: Perceived benefits of digital platforms positively impact MFI profitability.***

2.3. Barriers to Digital Platform Usage

Concerning digital platforms barriers, it is important to note that they limit the use of digital platforms. This includes limited internet access, security and trust issues, poor technological infrastructure, and digital illiteracy (Deshmukh et al., 2023). These barriers are prevalent in developing economies like Morocco. They restrict financial inclusion by reducing the effectiveness of digital platforms (Mbiti & Weil, 2016). The greater the barriers, the more challenges MFIs face in reaching financially underserved areas. Likewise, these barriers negatively impact the profitability of MFIs. The benefits of digital investment cannot be fully realized if customers struggle with the platforms. This underutilization negatively affects profitability (Donovan, 2012). Therefore, the following hypotheses are proposed:

- ***H5: Barriers to digital platform usage negatively impact financial inclusion.***
- ***H6: Barriers to digital platform usage negatively impact MFI profitability.***

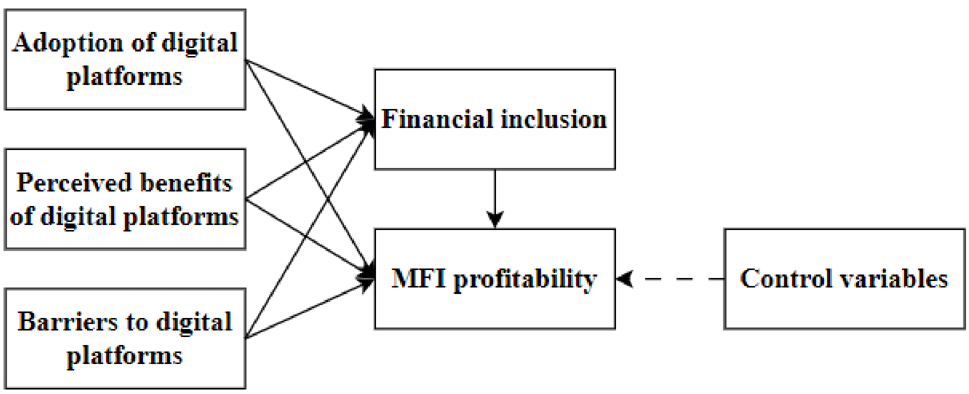
2.4. Financial inclusion and MFI profitability

Finally, financial inclusion enhances MFI profitability and sustainability (Vanroose, Gutiérrez-Nieto, & Matthyssens, 2020). Specifically, digital transformation fosters profitability through financial inclusion (Thathsarani & Jianguo, 2022; Bharti & Malik, 2022). Expanding customer reach increases loan revenue and disbursements, thereby improving performance (Cull et al., 2014). By boosting debt repayments and service utilization, MFIs can leverage financial inclusion to generate more revenue and enhance profitability. Based on this, the following hypothesis is posited:

- ***H7: Financial inclusion positively impacts MFI profitability.***

The relationships discussed above are illustrated in the conceptual framework presented in Figure 1. This study aims to provide further insights into how Moroccan MFIs can benefit from digital platforms to improve financial inclusion and increase profitability.

Figure 1: Conceptual framework



Source: Authors

3. Data and methodology

This contribution uses a quantitative methodology to investigate the impact of digital platform adoption, perceived benefits, and barriers on the financial inclusion and profitability of Moroccan MFIs. To this end, a survey was designed to collect information from both MFI clients and MFI management about existing digital platforms and their influence on financial inclusion and MFI profitability. A total of 204 responses were collected using both random and snowball sampling methods. Additionally, a small degree of stratified sampling was used to ensure that respondents came from urban, semi-urban, and rural areas.

Table 1 presents the demographic information of the respondents. Out of the total collected responses, 43.63% were male while 56.37% were female, with the 35–44 age group being the most represented (27.94%). Regarding geographical distribution, 33.33% of respondents were from rural areas, 37.75% from urban areas, and 28.92% from semi-urban areas. These results demonstrate that respondents represent all major geographical categories in Morocco. Finally, in terms of employment status, results indicate that 32.84% are employed, 19.12% are self-employed, 20.59% are unemployed, and 27.45% are retired.

While the first section of the survey discussed above concerns demographic variables, the second section measures the main variables of the study: (1) digital platform adoption, which is assessed based on the frequency and ease of use of digital platforms; (2) perceived benefits of digital platforms, represented by the perceived convenience, time-saving, and accessibility of the platforms; (3) barriers to using digital platforms, calculated based on issues related to digital literacy, poor internet connectivity, and security concerns; (4) financial inclusion; and (5) financial profitability of MFIs.

Table 1: Survey respondent profile (n = 204)

Measure	**Item**	**N**	**Percentage (%)**
Gender	Male	89	43.63%
	Female	115	56.37%
Age	18-24	35	17.16%
	25-34	46	22.55%
	35-44	57	27.94%
	45-54	23	11.27%
	55+	43	21.08%
Location	Urban	77	37.75%
	Semi-Urban	59	28.92%
	Rural	68	33.33%
Employment Status	Employed	67	32.84%
	Self-employed	39	19.12%
	Unemployed	42	20.59%
	Retired	56	27.45%

Source: Authors

ISSN: 2658-8455
Volume 6, Issue 4 (2025), pp. 257-270.

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International Journal of Accounting, Finance, Auditing, Management & Economics

Table 2: Factor loading, composite reliabilities, and average variance extracted (n = 204)

Constructs	Items	Loadings	CA	CR	AVE
Digital Platform Adoption	DPA1	0.789	0.786	0.793	0.675
	DPA2	0.883			
	DPA3	0.825			
Perceived Benefits of Digital Platforms	PB1	0.925	0.849	0.867	0.843
	PB2	0.783			
	PB3	0.799			
	PB4	0.874			
	PB5	0.845			
Barriers to Digital Platforms	BA1	0.822	0.793	0.859	0.586
	BA2	0.785			
	BA3	0.702			
Financial Inclusion	FI1	0.933	0.901	0.952	0.678
	FI2	0.831			
	FI3	0.781			
Profitability	PRO1	0.865	0.821	0.870	0.789
	PRO2	0.758			
	PRO3	0.759			

Source: Authors

Table 3: HTMT ratio

	Digital Platform Adoption	Perceived Benefits of Digital Platforms	Barriers to Digital Platforms	Financial Inclusion	Profitability
Digital Platform Adoption					
Perceived Benefits of Digital Platforms	0.769				
Barriers to Digital Platforms	0.683	0.892			
Financial Inclusion	0.892	0.706	0.689		
Profitability	0.601	0.783	0.763	0.697	

Source: Authors

The data analysis was conducted using SEM to examine the relationships between the variables (Hair et al., 2014). Following this, the reliability and validity of the survey responses were assessed using various metrics such as Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) (Fornell & Larcker, 1981). Results indicate that reliability and validity were confirmed, as the constructs achieved acceptable thresholds of more than 0.7 for both CA and CR, and more than 0.5 for AVE (Table 2).
Concerning discriminant validity, it was tested using the Heterotrait-Monotrait Ratio (HTMT) (Henseler, Ringle, & Sarstedt, 2015), and results indicate that all HTMT values were below 0.9, confirming discriminant validity (Table 3). Additional results further confirm the robustness of the measurement model, as all factor loadings had values higher than 0.70, ensuring reliability and validity across all constructs (Table 2).

4. Results

After conducting an analysis of the measurement model, several significant relationships between MFI profitability, digital platform adoption, and financial inclusion were revealed. Digital platform adoption was shown to have a positive and strong effect on financial inclusion ($\beta = 0.101$, $p < 0.01$). Consistently, when there is high digital platform adoption, MFIs improve their reach to unbanked regions and increase financial inclusion. These findings underline the fundamental role of digital advancement in closing the gap for the overlooked Moroccan population. Furthermore, digital platform adoption was found to have a positive and significant impact on MFI profitability ($\beta = 0.198$, $p < 0.01$). This suggests that digital platform adoption enables MFIs to provide more efficient services, minimize operational costs, and expand their reach, thereby improving overall financial performance.
The perceived benefits linked to digital platforms showed no significant impact on financial inclusion and MFI profitability ($p > 0.05$). Attributes such as ease of use, convenience, and time-saving features were non-significant to Moroccan users. However, barriers to using digital platforms were found to have a significant negative influence on financial inclusion ($\beta = -0.118$, $p < 0.01$). In other words, these barriers limit MFIs from including the disadvantaged segments of the population. Moreover, barriers also showed a significant negative impact on MFI profitability ($\beta = -0.276$, $p < 0.01$). This highlights the importance of overcoming educational and technological issues to improve both inclusion and profitability through digital platforms.
Financial inclusion was found to have a significant positive effect on MFI profitability ($\beta = 0.431$, $p < 0.01$). Accordingly, it is financially advantageous for MFIs to reach underserved populations as it increases customer engagement and loan disbursements which improve profitability. Financial inclusion cannot be considered as a social objective only, but also as a profitable venture for MFIs.
The present study also examined the sociodemographic characteristics that might have an impact on MFI profitability. The outcomes revealed that clients' age had a strong negative influence on profitability. This is consistent with the idea that younger individuals are likely to be tech-savvy compared to the older ones. Nonetheless, the other demographic factors, like employment status, gender, and location, showed no significant impact on the profitability of MFIs.

Table 4: Estimation results of the research hypotheses

Relationship	Std. beta	Std. error	T-value	P-value	Decision
Direct effects					
H1: Digital platform adoption → Financial inclusion	0.101	0.005	2.971	0.005	**Supported**
H2: Digital platform adoption → Profitability	0.198	0.041	3.240	0.002	**Supported**
H3: Perceived benefits → Financial inclusion	0.293	0.073	0.158	0.394	Not supported
H4: Perceived benefits → Profitability	0.423	0.054	1.781	0.082	Not supported
H5: Barriers to adoption → Financial inclusion	-0.118	0.053	5.219	0.001	**Supported**
H6: Barriers to adoption → Profitability	-0.276	0.032	7.321	0.000	**Supported**
H7: Financial inclusion → Profitability	0.431	0.012	15.33	0.000	**Supported**
Control Variables					
Gender → Profitability	0.421	0.098	1.110	0.215	Not supported
Age Group → Profitability	-0.191	0.071	2.995	0.006	**Supported**
Location → Profitability	0.002	0.065	0.987	0.245	Not supported
Employment Status → Profitability	0.051	0.053	1.576	0.115	Not supported

Source: Authors

5. Discussion:

Findings confirm that digital platform adoption is a significant driver of both financial inclusion and improved profitability for Moroccan MFIs. In other words, the results indicate that the higher the adoption of digital platforms, the greater the MFIs' reach in serving the poorest segments of society, especially in rural areas. This aligns with previous contributions that found a positive association between digital platform adoption and MFIs' financial inclusion, as well as between digital platform adoption and profitability. These results reflect the ability of MFIs to overcome traditional geographic barriers and operate with fewer operational constraints (Suri & Jack, 2016).
It can also be concluded that digital platform adoption contributes to MFI profitability by automating services and minimizing operational costs. Examples include the need for fewer administrative staff and fewer physical branches. This supports existing studies indicating that digital transformation not only improves service delivery but also enhances institutional cost reduction and operational efficiency (Donovan, 2012; Umba et al., 2024; Dorfleitner et al., 2022).
However, it is important to note that the perceived benefits of digital platforms, such as ease of use, convenience, and time savings, do not have a statistically significant impact on either financial inclusion or profitability in the Moroccan context. This deviates from commonly accepted technology adoption models, which often assume that perceived usefulness leads to greater usage and, ultimately, better performance outcomes. A possible interpretation is that while clients may recognize these benefits in theory, their actual behavior is shaped by deeper structural and behavioral barriers. In practice, many users, especially in rural areas, continue to rely on traditional methods rather than incorporating digital technologies into their daily financial lives.
In contrast, barriers to digital platform usage were found to have a significant and negative impact on both financial inclusion and MFI profitability. Constraints such as digital illiteracy, limited access to internet services, and concerns about cybersecurity directly hinder the ability of MFIs to scale their digital offerings and serve financially excluded populations effectively. These findings align with previous studies emphasizing the critical role of user trust, education, and digital access in ensuring the successful adoption of digital financial services (Babu et al., 2024; Singh & Rao, 2025). The presence of these barriers not only restricts outreach but also limits the efficiency gains that digital platforms are intended to deliver. This highlights the importance of addressing both technological infrastructure and human capacity in the pursuit of digital financial inclusion.
In addition, demographic insights from the analysis provide further context for interpreting the results. Age was found to have a significant negative effect on profitability, suggesting that younger clients, who are generally more digitally literate and receptive to new technologies, contribute more effectively to digital platform usage and performance. This may be attributed to their greater ease and frequency in engaging with mobile applications, online portals, and other fintech tools. On the other hand, older clients may be less inclined to adopt digital platforms, thereby generating fewer cost-saving or efficiency-enhancing interactions for MFIs. While other demographic variables, including gender, employment status, and geographic location, did not demonstrate statistically significant effects on profitability, the age factor highlights a generational divide that should be considered in the design and promotion of digital financial services.
These results suggest that digital platform adoption is not merely a technical enhancement, but a strategic pathway toward achieving the dual objectives of financial performance and social outreach. By improving both the efficiency and accessibility of services, digitalization offers Moroccan MFIs a reliable mechanism to expand their impact. However, to fully benefit from

these tools, MFIs need supportive policies and systems that promote education, security, and equal access across all segments of the population.

6. Conclusion

To conclude, this contribution shows the fundamental role digital platforms play in increasing the profitability of Moroccan MFIs while simultaneously improving their financial inclusion. Empirical results found evidence that greater adoption of digital platforms by MFIs leads to greater outreach to the impoverished population and higher profitability, validating the positive impact of digitalization on the performance of MFIs in Morocco. This aligns with the growing evidence across developing economies that highlights the ability of fintech to extend financial services beyond traditional boundaries.

Although the adoption of digital platforms presents strong potential for enhancing the profitability and financial inclusion of Moroccan MFIs, several critical barriers limit their effectiveness. These barriers include limited digital literacy, lack of internet access in rural areas, and low levels of trust in digital platforms among the underserved population. Therefore, this study urges policymakers to address these obstacles to enable MFIs to capitalize on the advantages of digital transformation.

The findings of this study offer practical implications for both MFIs and decision-makers. First, these findings suggest and encourage MFIs to invest in digital literacy training for their clients, simplify app user interfaces, and ensure that security measures are in place and well communicated to their clients. Second, government actors, along with regulators, should prioritize the expansion of digital and internet access in rural communities by investing in digital network infrastructure. This will lead to more inclusive growth in the Moroccan microfinance sector.

Finally, it is important to acknowledge several limitations of this study. First, the findings are based on self-reported survey data, which might be influenced by response bias or inaccuracies in participants' recall of their digital platform usage. Second, while the SEM technique offers robust insights into the relationships between key variables, it does not capture the qualitative dimensions of user experience, such as resistance to change. Third, the study treats digital platforms as a single concept, without accounting for the differences in type and quality of technologies used across various MFIs.

Future research could examine how variations in digital platform design, usability, and functionality influence both client engagement and MFI profitability. Additionally, qualitative studies that explore user experiences and internal organizational factors may offer solid insights into how digital transformation strategies translate into enhanced financial performance for Moroccan MFIs.

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