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Digitalization's Hidden Challenges in Moroccan SMEs: A Roadmap for Leadership and Sustainable Resource Management

Les défis cachés de la digitalisation dans les PME marocaines : une feuille de route pour le leadership et la gestion durable des ressources

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Digitalization's Hidden Challenges in Moroccan SMEs: A Roadmap for Leadership and Sustainable Resource Management

Abstract:

This study examines the hidden costs of digitalization in Moroccan SMEs, focusing on continuous training, cybersecurity, technological obsolescence, and change management. Using a quantitative survey of 53 SMEs and multiple regression analysis, it assesses the impact of these costs on profitability and business sustainability. Findings indicate that training and cybersecurity expenses significantly reduce profitability, while technological obsolescence and poor change management exacerbate operational inefficiencies. Neglecting these factors may hinder growth and limit digital scalability.

Despite the sample size limitations, the study underscores the need for strategic cost management. SMEs are advised to adopt forward-looking budgeting to enhance resilience in an increasingly digital market. Future research could expand the scope of other regions and industries.

Keywords: Digitalization, hidden costs, SMEs, leadership, Sustainable Management.

JEL Classification: D83; M15; O33.

Paper type: Empirical research

Résumé :

Cette étude examine les coûts cachés de la digitalisation dans les PME marocaines, en se concentrant sur la formation continue, la cybersécurité, l'obsolescence technologique et la conduite du changement. Au moyen d'une étude quantitative menée auprès de 53 PME et d'une analyse de régression multiple, elle évalue l'impact de ces coûts sur la rentabilité et la durabilité opérationnelles.

Les résultats indiquent que les dépenses de formation et de cybersécurité réduisent significativement la rentabilité, tandis que l'obsolescence technologique et une gestion déficiente du changement exacerbent les inefficacités opérationnelles. La négligence de ces facteurs pourrait freiner la croissance et limiter la scalabilité digitale.

Malgré les limitations liées à la taille de l'échantillon, l'étude souligne la nécessité d'une gestion stratégique des coûts. Il est recommandé aux PME d'adopter une budgétisation prospective pour renforcer leur résilience dans un marché toujours plus digitalisé. Les recherches futures pourraient élargir le champ d'analyse à d'autres régions et secteurs.

Mots-clés : Digitalisation, coûts cachés, PME, leadership, Gestion Durable.

Classification JEL : D83 ; M15 ; O33.

Type article : Recherche empirique

1. Introduction:

In the current global economic landscape, digital transformation has emerged as a pivotal factor in enhancing the competitiveness, adaptability, and resilience of small and medium-sized enterprises (SMEs). Defined as the integration of digital technologies across all facets of business operations, digital transformation transcends mere technology adoption; it represents a paradigm shift in how organizations operate, innovate, and engage with stakeholders. Digital transformation offers SMEs unprecedented opportunities to streamline operations, optimize resource allocation, and access to new markets. Collectively, these advances drive efficiency and foster growth, thereby enabling SMEs to better position themselves within increasingly competitive local and international markets (Mohamed, H., Jabbari, A., & Haddad, S. E. 2021). In Morocco, SMEs represent a cornerstone of the economy, comprising over 93% of the country's business entities and contributing substantially to employment and economic development (Haut-Commissariat au Plan, 2021). These enterprises are active across a broad range of sectors, including trade, manufacturing, and services, each sector playing a crucial role in Morocco's economic diversification. Recognizing the importance of digital transformation, the Moroccan government has implemented initiatives such as the (Digital MOROCCO, 2030) program, designed to promote the adoption of digital technologies and modernize the business environment. Consequently, Moroccan SMEs have increasingly embraced digital solutions, aiming to drive productivity, reduce operational costs, and enhance customer engagement. While digital transformation presents compelling benefits, it simultaneously introduces significant challenges, particularly in the form of hidden costs. Unlike large corporations that often have access to substantial resources and dedicated technology management teams, SMEs operate with limited financial and human capital, which hinders their ability to effectively manage these costs. Although the literature has widely recognized the operational and strategic advantages of digital transformation, relatively few studies have systematically addressed the hidden costs associated with this process, especially in the context of SMEs in developing economies.

These hidden costs often emerge over time, rather than at the initial stages of digital adoption, creating unforeseen financial and operational pressures that can impair an SME's financial health and sustainability. Without appropriate planning and mitigation strategies, these costs can erode the long-term gains associated with digital transformation and compromise SMEs' competitive positioning. The existing literature identifies four principal hidden cost areas that SMEs frequently encounter: continuous training, cybersecurity, technological obsolescence, and change management. Each area presents unique challenges that can impede SMEs' efforts to fully benefit from digital transformation.

This study focuses on elucidating these critical cost factors to provide a comprehensive understanding of the financial pressures that digital transformation imposes on Moroccan SMEs. The four hidden cost areas central to this research are detailed below:

Continuous Training Costs: As SMEs incorporate new digital tools, they must invest in ongoing training to ensure that employees can effectively use these technologies. Training costs, both direct (e.g., course fees) and indirect (e.g., productivity losses during training sessions), can be considerable, particularly for SMEs with limited budgets. This financial strain can impede digital adoption, diminish short-term productivity, and pose significant budgetary challenges. The situation is particularly pronounced in Morocco, where a lack of digital skills among SME employees further exacerbates training costs and delays the digitalization process.

Cybersecurity Costs: As SMEs increase their reliance on digital platforms, they become more vulnerable to cybersecurity risks, necessitating investments in security infrastructure and practices. Although larger organizations are often able to deploy comprehensive cybersecurity measures, SMEs frequently lack the financial resources and technical expertise required to protect their systems effectively. Consequently, they are exposed to the risk of data breaches,

which can incur substantial recovery costs, damage corporate reputation, and erode customer trust (Nabila, A. 2022). In Morocco, cybersecurity expenses are often underestimated during digitalization, exposing SMEs to high potential costs in the event of a cyber incident (Alsaad et al., 2019).

Technological Obsolescence Costs: The rapid evolution of digital tools and systems means that technologies quickly become outdated, requiring SMEs to engage in continuous upgrades to maintain competitiveness. For many SMEs with constrained budgets, managing these recurring expenses is challenging, leading to reliance on outdated systems that inhibit operational efficiency and increase maintenance costs. In Morocco, budgetary limitations frequently compel SMEs to delay technology upgrades, which heightens inefficiencies and undermines competitiveness (Yaacoubi, Y. E., & Bennani, H. 2022).

Change Management Costs: The transition to digital operations often requires substantial organizational changes, which can meet with resistance, particularly among employees accustomed to traditional workflows. Effective management changes involve developing strategies to address this resistance and supporting employees in adapting to new workflows, both of which incur additional costs. For Moroccan SMEs, cultural barriers to organizational change amplify these costs, as established practices are often deeply rooted, resulting in productivity losses and elevated turnover rates (Benazzou, L., & Ettahiri, L. 2022).

The primary aim of this study is to deliver a rigorous analysis of these hidden costs and to evaluate their impact on the financial performance and operational efficiency of Moroccan SMEs. By identifying and assessing these often-overlooked expenses, this research seeks to offer SME leaders practical insights into budgeting, strategic planning, and resource allocation during the digital transformation process. Additionally, this study contributes to the literature on digital transformation by exploring the hidden cost dimensions that affect SMEs' ability to achieve sustainable digital integration in emerging economies.

This paper is structured as follows: the literature review synthesizes existing research and theoretical frameworks related to hidden costs in digital transformation, establishing a foundation for the study. The methodology section outlines the research design, data collection methods, and analytical techniques used to investigate the identified cost categories. The results and discussion sections present key findings and implications for SME management, highlighting strategies for mitigating hidden costs. The paper concludes with a discussion of managerial implications, study limitations, and recommendations for future research.

2. Literature Review

Digital transformation is widely acknowledged as a critical driver of innovation, productivity, and competitive advantage for small and medium-sized enterprises (SMEs). However, while adopting digital technologies offers numerous advantages, the process also incurs hidden costs that can hinder the financial and operational sustainability of SMEs, especially in resource-constrained environments. This section provides a comprehensive analysis of four key hidden cost areas continuous training, cybersecurity, technological obsolescence, and change management as documented in the existing literature.

2.1. Continuous Training Costs

The process of digital transformation demands that SMEs regularly upgrade their workforce's skills to effectively operate new digital tools and systems. The literature indicates that training costs represent a substantial hidden expense for SMEs, as they require consistent investment in employee upskilling to keep pace with technological advancements. (Bengrich, M., & Abdou, S. 2022) highlight the importance of continuous training for successful digital transformation, noting that a lack of adequate skill sets can lead to operational inefficiencies and limit the benefits of digital adoption. These training costs include direct financial outlays (e.g., course

fees, training materials) as well as indirect expenses, such as the productivity losses incurred while employees participate in training sessions.

In the context of Moroccan SMEs, (Boutgayout, B., & Ghazali, M. E. 2020) finds that many firms struggle to finance the necessary training programs, which hinders their ability to fully exploit digital technologies. The challenges are especially pronounced in sectors characterized by rapid technological change, where upskilling needs are continuous and substantial. This constraint often results in slower digital adoption and limited digital proficiency, as SMEs face pressure to allocate resources to competing operational priorities. Thus, while training investments are essential for long-term growth and innovation, they can exert a significant financial strain on SMEs in the short term, compromising profitability and productivity.

2.2. Cybersecurity Costs

The growing reliance on digital platforms has made SMEs increasingly vulnerable to cybersecurity threats, requiring them to invest in preventive measures to safeguard their digital assets. However, SMEs frequently lack the resources to establish robust cybersecurity frameworks, which leaves them at risk of data breaches and cyberattacks (Alsufyani, N., & Gill, A. Q. 2022).) argues that while larger enterprises can typically allocate substantial resources to cybersecurity, SMEs are often constrained by limited budgets and lack the technical expertise to implement comprehensive security protocols. The costs associated with cybersecurity extend beyond initial preventive measures, as data breaches can lead to significant financial consequences, including recovery expenses, reputational damage, and erosion of customer trust Karoui, M., & Duzert, A. (2016).

Research on cybersecurity in developing economies highlights these challenges further (Frimousse, S., & Peretti, J.-M. 2017) found that SMEs in such environments often delay cybersecurity investments, focusing instead on other immediate operational needs. In the Moroccan context, the cost of cybersecurity is frequently underestimated, leaving SMEs particularly exposed to cyber risks. As digital threats continue to evolve, cybersecurity costs are projected to increase, placing further financial strain on SMEs. Effective cybersecurity measures are therefore essential for protecting SMEs' digital assets, though they present a formidable cost burden that is often neglected in initial budgeting.

2.3. Technological Obsolescence Costs

The rapid pace of technological innovation means that digital tools and systems become obsolete quickly, necessitating regular updates and replacements to maintain competitive operational standards. Technological obsolescence imposes a significant hidden cost on SMEs, as it requires continuous investment in new software, hardware, and digital infrastructure. For smaller firms with limited capital, managing these recurrent expenses can be especially challenging. (Bouali, J., & Ejbari, R. 2022). emphasizes that technological obsolescence disproportionately impacts SMEs, which lack the financial flexibility to frequently upgrade systems. As a result, many SMEs attempt to prolong the lifespan of their existing technologies, leading to higher maintenance costs and decreased operational efficiency.

In Morocco, (Omerani, D., Haj-Khlifa, C., & Atitaou, A. 2022) observe that budget constraints often compel SMEs to delay technological upgrades, exacerbating inefficiencies and impeding digital transformation efforts. These delays can create a cycle of dependency on outdated systems, as firms incur increasing maintenance costs while operational processes become progressively less efficient. Consequently, the costs associated with technological obsolescence can erode the anticipated gains of digital transformation, reduce the overall return on investment and diminishing SMEs' competitiveness.

2.4. Change Management Costs

Change management is a critical yet frequently underestimated component of digital

transformation. Effective digital transformation requires not only the adoption of new technologies but also significant organizational changes, which can be met with resistance, particularly among employees accustomed to traditional workflows. The literature on change management underscores that resistance to change can lead to productivity losses, higher turnover rates, and additional costs related to employee adaptation. For SMEs, these costs can be especially challenging, as they often lack structured management processes that facilitate the transition to digital operations.

Jaber, M., Chihab, N., & Jamal, Y. (2023). found that resistance to digital change is particularly pronounced in traditional sectors, where employees may have limited experience with digital tools and may view new systems with skepticism. In Morocco, cultural preferences for established business practices further complicate change management, as deeply ingrained organizational norms create additional resistance to digital adoption. This resistance can lead to higher turnover and productivity losses, requiring additional resources to manage employee adaptation. Therefore, effective management strategies are necessary to ensure a smooth digital transformation process, but they add to the hidden costs that SMEs must navigate.

The literature review highlights that the digital transformation of Moroccan SMEs entails a range of underestimated constraints, often invisible at the initial stages of adoption. These hidden costs, related to training, cybersecurity, technological renewal, and change management, tend to appear progressively, creating financial and organizational tensions that may affect the continuity and depth of the transformation.

In line with prior research (Boutgayout & Ghazali, 2020; Bengrich & Abdou, 2022; Bouali & Ejbari, 2022; Benazzou & Ettahiri, 2022) and grounded in the Resource-Based View and theories of organizational change, the following hypotheses are proposed to structure the empirical analysis and examine how these cost categories translate into internal challenges for SMEs.

H1. Continuous training costs reduce the operational adaptability of Moroccan SMEs. Ongoing upskilling is necessary to integrate digital tools effectively. However, limited resources often constrain training capacity. In addition to direct financial outlays, the time and effort required to build digital competencies can disrupt short-term workflows, especially in service-oriented businesses.

H2. Cybersecurity investments moderate the extent of digital system deployment. Ensuring data protection and digital integrity is essential but remains costly for SMEs. The absence of dedicated cybersecurity expertise and the burden of compliance obligations may limit the deployment of digital solutions and increase perceived risk, particularly in digitally intensive sectors.

H3. Technological obsolescence imposes recurring costs that hinder digital continuity. Due to rapid innovation cycles, SMEs must regularly upgrade systems to remain efficient. In practice, many delay updates for budgetary reasons. This leads to inefficiencies, increased maintenance burdens, and reduced compatibility across digital tools.

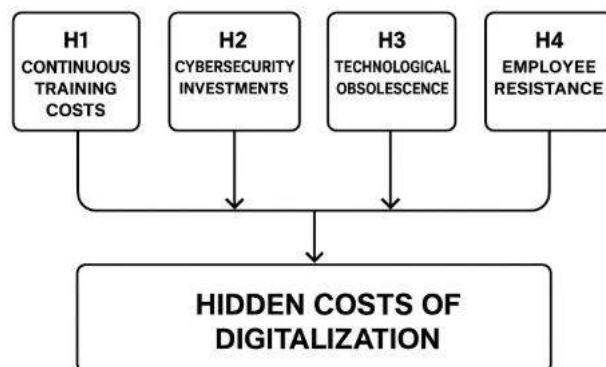
H4. Change management challenges and employee resistance undermine the effectiveness of transformation initiatives. Adapting to digital practices requires not only technical integration but also organizational flexibility. In traditional environments, resistance to new processes can result in disengagement, misalignment, and indirect costs that delay the expected gains of transformation.

Together, these hypotheses provide a framework for analyzing the structural and financial tensions embedded in digitalization efforts. They also highlight the importance of anticipating non-visible costs when designing digital strategies, particularly in contexts where SMEs operate under multiple constraints.

Based on the theoretical framework and the four research hypotheses developed above, the following conceptual model summarizes the main hidden cost dimensions associated with

digitalization in Moroccan SMEs. Each cost category constitutes an explanatory factor potentially influencing internal organizational frictions, such as reduced adaptability, limited scalability, or delayed transformation. The model serves as a foundation for empirical investigation and the statistical testing of hypotheses in the subsequent sections.

Figure 1: Conceptual Model of Hidden Costs in the Digitalization of Moroccan SMEs



Source: authors

This model illustrates the four hypothesized components of hidden costs: training expenditures, cybersecurity investments, technological renewal pressures, and resistance to organizational change. Each of these dimensions is treated as an independent construct that may generate internal friction during digital transformation processes in SMEs.

3. Research Methodology

This study employs a quantitative research approach to systematically examine the hidden costs associated with digital transformation within Moroccan SMEs. The methodology is structured to provide an in-depth understanding of the financial and operational impacts of these hidden costs categorized as continuous training, cybersecurity, technological obsolescence, and change management on SME performance. This approach enables a robust, replicable examination of cost-related factors in the context of digital transformation, with a focus on descriptive and comparative analysis to uncover patterns across sectors and company profiles.

A cross-sectional, quantitative survey design was selected, allowing for the structured collection and analysis of data across a representative sample of Moroccan SMEs. The study's scope allows for generalizable insights across Moroccan SMEs operating within diverse sectors and seeks to elucidate the hidden cost implications that digital transformation poses within this economic context. The study's sample consists of 53 Moroccan SMEs, carefully chosen to capture a cross-section of the core sectors trade, manufacturing, and services that underpin the Moroccan economy.

These firms were selected based on the following inclusion criteria:

- **Digital Transformation Engagement:** Inclusion was limited to SMEs that had undertaken digital transformation initiatives within the past five years, ensuring that responses would directly reflect recent engagement with digital processes.
- **SME Classification:** Participating firms met the OECD classification criteria for SMEs, employing fewer than 250 individuals.
- **Sectoral Representation:** A purposive sampling approach ensured representation across multiple sectors, capturing the unique digital transformation challenges and cost implications faced by SMEs within different industries.

Data was collected using a structured survey instrument tailored to assess the hidden costs associated with digital transformation. The survey used a combination of closed and Likert-scale questions, enabling respondents to evaluate the extent and nature of costs related to each

category continuous training, cybersecurity, technological obsolescence, and change management. Demographic data on firm size, sector, and years engaged in digital transformation were also gathered, supporting a nuanced analysis of cost impacts across different company profiles.

The survey instrument was meticulously developed to align with the study's objectives, drawing on established constructs from the literature on digital transformation and cost management. Each hidden cost category was operationalized into quantifiable items, enabling precise data capture on expenditures associated with training, cybersecurity, technology updates, and change management practices. To ensure clarity, reliability, and validity, the survey was pretested with a subset of SMEs, and feedback from the pretest was used to refine survey items, ensuring the instrument's robustness and applicability in a Moroccan SME context.

The quantitative data collected were analyzed using SPSS software. Descriptive analyses provided an overall profile of the hidden costs, while multiple regression analyses were used to assess the impact of each cost category on SME performance.

Table 1. Demographic PROFILE (N=53)

Characteristic	Category	Frequency (n = 53)	Percentage (%)
Firm Size	Micro Enterprise (<10 employees)	15	28.3
	Small Enterprise (10-49 employees)	23	43.4
	Medium Enterprise (50-249 employees)	15	28.3
Sector	Trade	18	34.0
	Services	20	37.7
	Industry	15	28.3
Years in Operation	1-5 Years	10	18.9
	6-10 Years	22	41.5
	11-20 Years	13	24.5
	Over 20 Years	8	15.1
Digital Transformation Engagement	<2 Years	27	50.9
	2-5 Years	20	37.7
	>5 Years	6	11.3

Source: authors

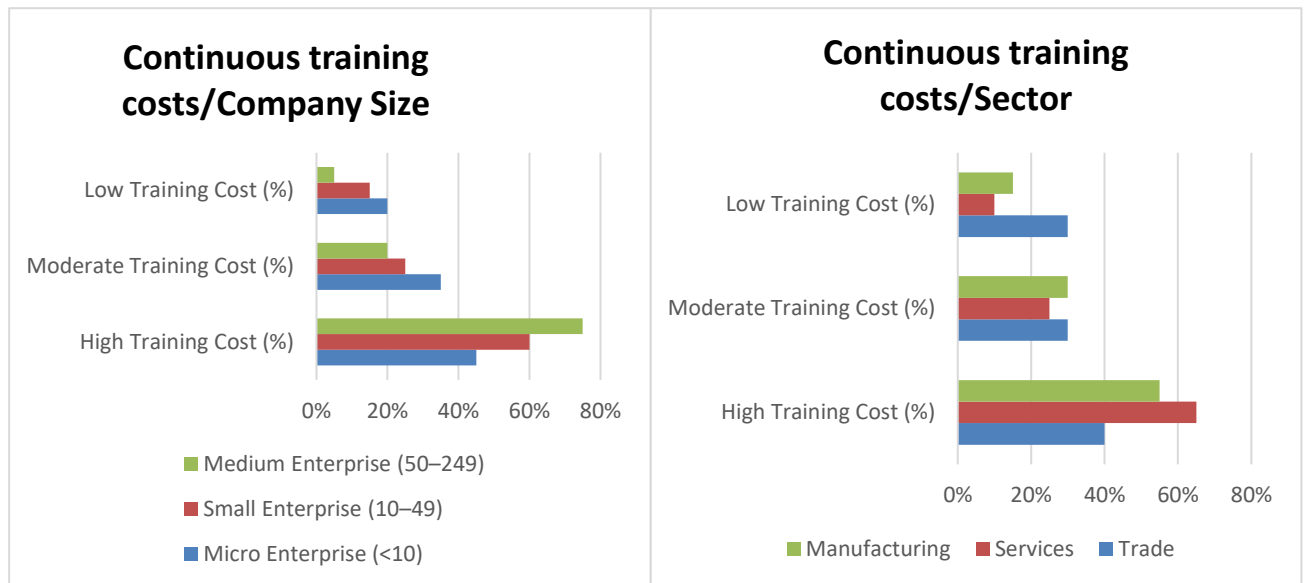
4. Results and interpretation

In this section, we will examine the main findings of our study regarding hidden costs related to digital transformation in Moroccan SMEs (Continuous training, Cybersecurity, Technological obsolescence and Change management). The findings in this study suggest cost profiles for company sizes and sectors, revealing the most relevant costs encountered between –MSMEs- within the Moroccan context.

4.1 Continuous Training Costs

Continuous training cost is also a burden, according to the survey data show, as 68 percent of SMEs incurred high expenditure. Large companies — which employ at least 250 people — come in a close second, but medium-sized enterprises (50?249 employees) are hit the hardest and this is likely because bigger firms require more training across their broad workforce. The services sector recorded the highest training costs across sectors, indicating the complexity and specificity of digital skills for customer-facing digital tools.

Figure 2: Continuous Training Costs



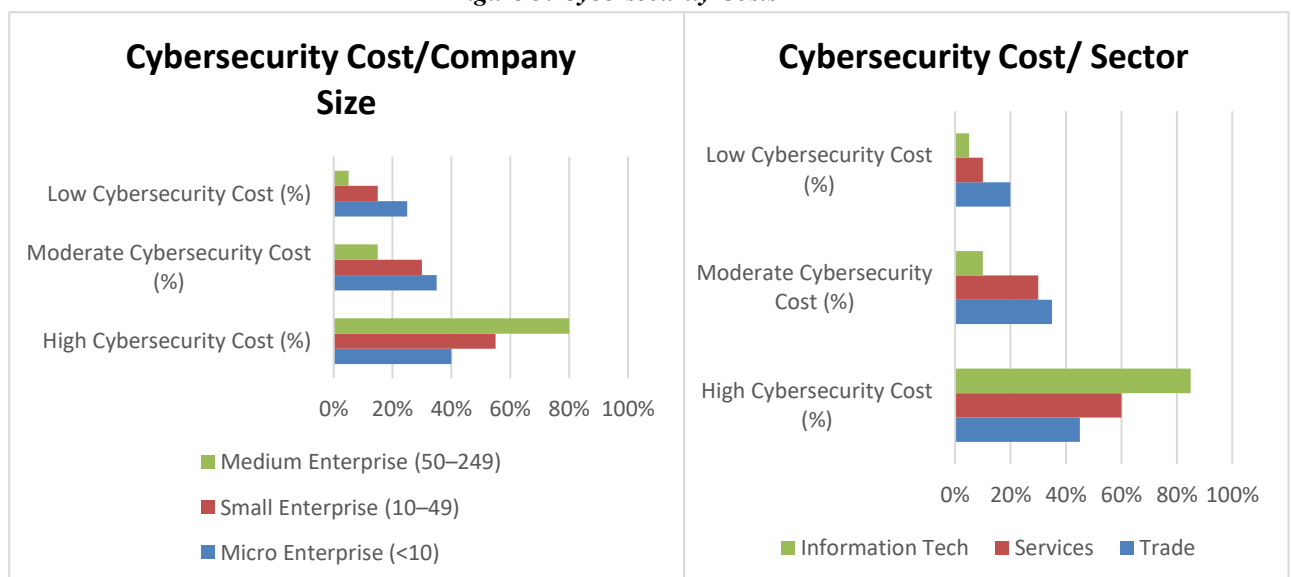
Source: authors

These figures highlight the challenge of lifelong learning and training for Moroccan SMEs as service firms often need digital skills' (I'm not sure whether to include a citation or not; this is basically from a participatory paper). At medium-sized companies, costs are compounded because of the requirement to increase an entire workforce, usually with a small budget. These results imply an urgent need for more targeted and sector-specific training methods, possibly in partnership with Moroccan institutions of higher education to significantly reduce costs and enhance access to digital skills.

4.2 Cybersecurity Costs

Cybersecurity costs proved to be a major hidden expense, with 74% of SMEs reporting higher than expected cyber investments. A full 85% of IT companies identified cybersecurity as one of the top financial burdens they faced, so the impact is especially real in both IT and service sectors. It is indicative of the significant level of exposure to cyber threats experienced by businesses in data heavy and web-based industries.

Figure 3: Cybersecurity Costs

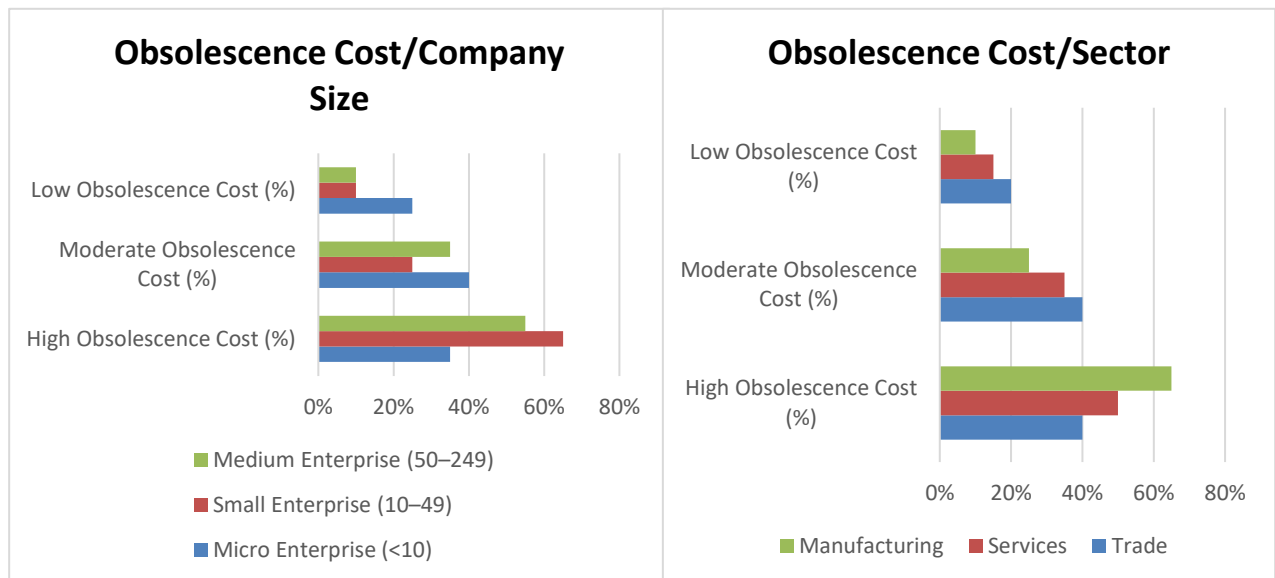


The higher cybersecurity expenses of the SMEs in IT and services showed that there is an immediate need to build up a strong security infrastructure. This trend is indicative of higher cyber risk in sectors where there is considerable digital exposure, consistent with research reinforcing the need for strategic cybersecurity investment to avoid potential financial and reputational damages. For Moroccan SMEs, the cybersecurity threat landscape can be daunting so a risk-based approach could hold the key to preserving costs whilst protecting digital assets through management of resources against key areas of risk.

4.3 Technological Obsolescence Costs

The analysis identifies technological obsolescence as an ongoing financial burden with 62 per cent of SMEs experiencing challenges caused by the need for frequent system upgrades. Because of their relatively small budgets, small enterprises (10–49 employees). For manufacturing, which is highly reliant upon current technology to operate efficiently and effectively, the obsolescence costs are especially high.

Figure 4: Obsolescence Cost



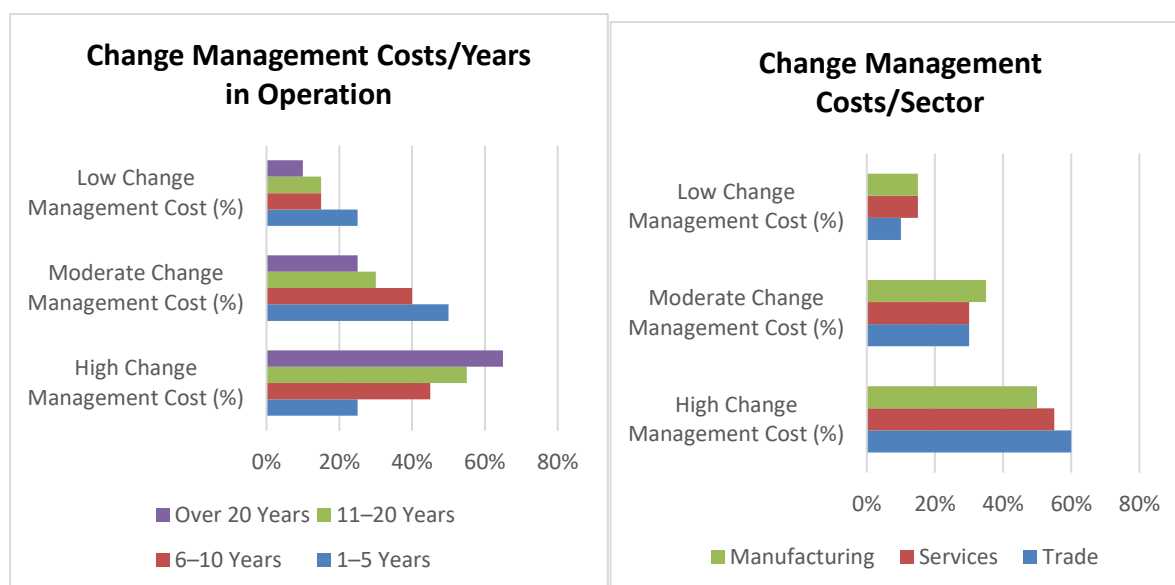
Source: authors

Technological obsolescence threatens manufacturing-based smaller Moroccan SMEs financially. This figures to be omnidirectional as it supports research that shows frequent upgrades are necessary for productivity but costly, especially for small firms. Scheduled technology refresh cycles may facilitate more predictable cost control over time, and working with technology providers to deploy staggered payments can provide more financial flexibility for SMEs in Morocco.

4.4 Change Management Costs

The impediment of digital transformation has led long-established Moroccan SMEs, with 65% of firms over 20 years old facing significant costs of change management. This was likely due to the nature of existing practices within the trade sector and employees fearing digital workflows.

Figure 5: Change Management Costs



Source: authors

The financial costs of resistance to digital adoption can be found from exploring change management costs in the context of Moroccan SMEs, especially for established firms and trade sector. This resonates with the literature stressing the importance of changing management in traditional organizations making digital transformation journey. Encouraging an agile organizational culture in Moroccan SMEs with government or industry-sponsored change management training may decrease these costs and enhance the ease of digital conversion.

5. Discussion

This study uncovers insights on obscure costs of digital transformation borne by Moroccan firms SMEs which fall under the umbrella of continuous training, cyber security, technological obsolescence and change management. Each cost category presents unique challenges that, if not strategically handled, could obstruct SMEs from accomplishing sustainable digital transformation. This conversation places the findings within the current literature, explores implications for SME management and discusses some solutions to manage financial pressures.

5.1. Continuous Training Costs and Skills Gaps

The penalty of continuous training costs proved to be a heavy burden, especially for medium businesses and services. This aligns with previous research that shows barriers of skill gaps seem to inhibit adequate digital transformation from taking place among SMEs (Marler & Fisher, 2017). This challenge is compounded for Moroccan SMEs by the relative scarcity of sector-specific training resources, leading to reliance on expensive external courses to up-skill their workforce to be digitally adept.

Dealing with training costs requires sector-appropriate investment into supply chain digital skills. To help manage expenses while improving skills, Moroccan SMEs may want to consider collaborating with a local university or training center for customized programs. Furthermore, the use of in-house digital training platforms and micro-learning modules can provide flexible, scalable solutions that cater to budget constraints and key skills needs, thus mitigating the financial implications of continuous up-skilling.

5.2. Cybersecurity Costs and Risk Exposure

Cybersecurity is an important cost both as a hidden cost and focused particularly on IT and

services for SMEs study. This finding supports prior research which argues that SMEs are at greater risk of cyber-attack because they have inadequate security infrastructure (Cram et al., 2017). In Morocco, most of the SMEs (Small and medium-sized enterprises), where adequate cybersecurity frameworks are extremely costly, are thus more exposed to cyber risks with very expensive consequences in case of a cyber-attack.

This paper suggests that adopting a risk-based cybersecurity framework may provide Moroccan SMEs with more efficient allocation of protection resources over critical digital assets. Sector-specific cyber security guidelines which could be supported by industry, or government — may help SME's prioritize investment whilst also managing costs. Shared services or similarly structured cooperative frameworks within specific industries may provide affordable protection, and in doing so enable strength through resilience among the SME sectors.

5.3. Technological Obsolescence and Budgetary Constraints

The results suggest that technological obsolescence is an expense that keeps coming back, especially so for smaller SMEs who tend to have lower budgets available for regular system updates. This observation tallies with previous research that indicates SMEs frequently lag on technological advances driving loss of productivity and increasing maintenance costs over time (Belkadi, 2020).

Moroccan SMEs might overcome these challenges by having a structured technology refresh cycle where the budget is set aside for incremental point of view updates based on the anticipated life cycle of critical digital assets. Payment plans over time with technology vendors may also help; additionally, payment or incentives-supported grants, or low-interest financing programs backed by the government geared towards digital transformation for SMEs, could also soften obsolescence input costs.

5.4. Change Management Costs and Cultural Resistance

The cost of change management is, however, exceedingly high for traditional Moroccan SMEs, especially in sectors where rigid traditions compel 'business as usual' (e.g., trade). This result does correlate with literature that cites cultural and structural resistance as significant barriers to traditional businesses undergoing a digital transformation (Cameron & Green, 2019). Unlike other countries, the organizational culture of Moroccan SMEs is still based on traditional practices and so significant investments in change management will be needed to help digital adoption in Morocco.

It is critical for Moroccan SMEs to embed change management into incremental steps within the digital transformation strategy, to tackle resistance efficiently. An organizational culture that embraces adaptability and continuous improvement may minimize the resistance (and cost) over time. Leadership training on managing digital changes could also help managers drive transformation. Industry associations or programs by the Government can help to dual shampoo with these initiatives that reduces productivity losses and helps employees adapt better.

5.5. Broader Implications for Moroccan SMEs in Digital Transformation

This specific research indicates that there are numerous hidden costs which Moroccan SMEs get during digital transformation and these hidden costs need to consider at the initial stage of planning and this can lead to detrimental effects on financial stability as well as operational efficiency. As Moroccan SMEs become articulate with these costs and manage them deftly, they can ease their financial impact, consequently gaining a more robust and emerging digital transformation.

Given the financial pressure this represents for Moroccan SMEs, a phased strategy with some targeted intervention for both digital investment priorities and adaptation to sectoral constraints will help keep these businesses afloat. Stakeholders in the industry, technology providers and

governments need to work together to create an infrastructure that enables tackling hidden costs. As for policy interventions, financial subsidies, targeted training and availability of cybersecurity resources could be critical in nurturing a digitally open space in the SME landscape.

5.6. Contribution to the Literature and Directions for Future Research

The findings inform the literature on SME digital transformation by elucidating previously unexplored costs in a developing market setting. By concentrating on the financial and operational limitations that prevent digital transformation in Moroccan SMEs, it fills a research gap generating discussion around transformation constraints rather than just its benefits as made so far. These study findings may be explored further in future research to investigate hidden costs present in other regional settings and whether the ramifications of these digital transformation costs increase, decrease or remain the same over time as SMEs become more digitally mature. Moreover, examining the impact of specific policy measures to mitigate such costs would provide us with important advice on how best to facilitate SME

6. Conclusion:

It gives a detailed insight on the indirect costs related to digital transformation in Moroccan SMEs, which can be classified into continuous training, cybersecurity, technological obsolescence and change management. Through the assessment of these hidden costs, this research unveils significant financial and operational challenges posed on Moroccan SMEs that, if not handled well, can impair them to gain their long-term desired benefits from digital transformation. The distinct nuisances of each cost category highlight the importance of strategic planning and management to enable a sustainable digital transformation process.

It also shows that continuous training and cyber security constitute the most expensive stressful budget, especially from medium-size companies as well as companies in IT and services sector. The implication of these findings is that better targeted training programs alongside risk-based cyber security spending could help SMEs manage these costs more efficiently. Also, tech obsolescence became a regular cost factor — again for smaller manufacturing companies that need to be regularly connected digitally. To relieve the financial burden of keeping up with rapid advancements in technology, SMEs can set planned refresh cycles for technology and assess various financing options available to them. Finally, change management costs demonstrate that longstanding SMEs even those with international links — often suffer from deeper cultural and structural resistance, especially common in traditional sectors such as trade. Along with change management training, an adaptable organizational culture might decrease pushbacks and allow your digital transformation to go more smoothly.

This paper adds to the literature by investigating an under-researched area in digital transformation research, namely hidden costs faced by developing economy SMEs. This study is an exception to the rule; it highlights a new barrier on digital transformation in firms' journey which has not been addressed sufficiently in the academic literature financial constraints that limit effective investment and capital accumulation. Such insight reinforces the need to understand these costs as critical in resource-scarce circumstances for aiding SMEs to independently attain robust and sustainable digital prosperity.

This study's insights create myriad research possibilities into the long-term effects of hidden costs to SME performance and competitiveness as digital maturity evolves. Future research may broaden the geographical scale, comparing hidden costs across regions and sectors to further expand our understanding of how subtle cost management works in different economic contexts. Lastly, it could be able to shed light on the role of policy interventions in alleviating

these costs and thus better inform frameworks that enable SME digitalization in resource-constraint contexts.

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