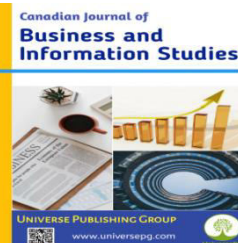




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Adoption of Digital Technologies in Bangladeshi SMEs: Barriers, Enablers, and Strategic Responses Post-Covid-19

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Abstract

Digitalization is now recognized worldwide and especially in Bangladesh as an essential pathway towards rapid growth, enabling Small and Medium Enterprises (SMEs) to enhance their competitiveness. Investigating barriers, enablers, and strategic responses to the adoption of digital technologies in Bangladesh SMEs: an exploratory study on the digital transformation era after COVID-19 Detailed in the research is a survey of 400 small and medium-sized enterprises (SMEs) within the retail, service, and manufacturing sectors. Results show that digital adoption is especially limited by financial constraints, insufficiently developed skills, and infrastructure. On the other hand, initiatives by the government and awareness of competition and training of employees are important enablers of digital transformation. Phased implementation, partnership with external entities, and other strategic responses to these barriers are quite common. While the digital transformation was already underway, the COVID-19 pandemic served as an accelerator, propelling the growth of e-commerce, digital payments, remote work tools, and more to unprecedented levels. Looking forward, more than half of all SMEs intend to maintain or even increase their investment in new digital technologies, suggesting a permanent move to digital resilience. A digital transition for SMEs will require targeted intervention to plug financial and skills gaps, the research highlights.

Keywords: Digital technology, Small and medium enterprises, Barriers and enablers, and Digital resilience.

1. Introduction

Small and Medium Enterprises (SMEs) in Bangladesh have an indispensable contribution to GDP growth, employment, and development because of Bangladesh's economic structure. In fact, the Bangladesh Bureau of Statistics (BBS) says SMEs contribute to 25 percent of the national GDP and 80 percent of non-agricultural employment (BBS 2020; Abu-Matar, 2025). Nevertheless, many smaller enterprises, which

are vital to the strength of an economy but have limited access to technology, skills, and finance necessary for digitalization, have experienced slower growth; as a result, many of these enterprises remain bystanders in the digital economy. As a consequence, the COVID-19 pandemic has exacerbated these issues faced by SMEs, thus compelling them to rethink how they operate and adjust to using digital technologies to remain relevant and competitive in a rapidly changing

market landscape. Islam *et al.* conducted a study. Nevertheless, the Pandemic, (2020) triggered the use of digital tools by SMEs (small-and-medium-sized enterprises) because strategies followed before the outbreak were, to say the least, an unsuited status quo in times of lockdown and social distancing.

Despite this, getting into digital real estate has not really been easy. Rahman and Ahmed, (2020) examined the adoption of digital technology by SMEs in Bangladesh and found three key barriers: digital illiteracy, high upfront costs, and lack of infrastructure development. Such challenges are much more acute in the rural periphery, where internet services are erratic and digital devices scarce. Nonetheless, there are few enablers that have facilitated the implementation of digital transformation for SMEs. According to Sultana and Karim, (2022) the Vision 2021 under the Digital Bangladesh is a supportive and motivational plan set forth by the government that serves as an attractive opportunity for SMEs to digitize. Similarly, access to the mobile internet and inexpensive smartphones has unlocked a medium for SMEs to exploit digital marketing, sales, and engagement with consumers. Due to these challenges, SMEs have reacted strategically in some of the other ways. Some have been more impulsive and faded to digital to meet the need of the time, and others have been planning for years, incorporating digital in their long-term business background. What is noteworthy is the proactive approach of digital adoption, which has made the SMEs better prepared than their counterparts post lockdowns when impacted by the pandemic (Uddin and Chowdhury, 2023) and enabled them to sustain the business during lockdown periods. The COVID-19 pandemic has accelerated the implementation of digital technologies in Bangladeshi SMEs, despite both challenges and opportunities. A digitally inclusive economy, however, requires an understanding of the barriers, enablers, and strategic responses to digital adoption by policymakers, business owners, and development agencies.

Research Objectives

This study aims to:

- Identify the key barriers hindering the adoption of digital technologies in Bangladeshi SMEs.

- Examine the enablers that facilitate the digital transformation of these enterprises.
- Analyze the strategic responses adopted by SMEs to overcome challenges and leverage digital technologies effectively in the post-COVID-19 era.

Research Questions

The research seeks to answer the following questions:

1. What are the primary barriers to the adoption of digital technologies in Bangladeshi SMEs?
2. What factors enable the successful implementation of digital technologies in these enterprises?
3. How have SMEs in Bangladesh strategically responded to the challenges posed by the COVID-19 pandemic in terms of digital adoption?

Significance of the Study

This study is significant in terms of obtaining a perspective on post-COVID-19 era digital technology adoption in Bangladeshi small and medium enterprises. Small and medium-sized enterprises (SMEs) are one of the most important cornerstones for the economy of Bangladesh; especially for a developing country like Bangladesh, they play a significant role in employment and also in GDP. However, there were still barriers in their digital transformation, such as limited access to technology, lack of digital skills, and expenses (Rahman & Ahmed, 2020; Ndifor *et al.*, 2023).

The aim of this study is to investigate the migration barriers towards digitalization, including infrastructure, resistance to change, and funding challenges. These barriers might be understood well through policymakers and business leaders who can consequently refine and target sustainable interventions (Sultana & Karim, 2022). It will also focus on finding the enablers of digital innovation, e.g., government intervention, tech-driven organizational preparedness, etc. (Uddin & Chowdhury, 2023). This study is expected to contribute to the existing body of knowledge on digital transformation of SMEs in general and in the context of emerging markets such as Bangladesh in particular. This research will assist the SME enterprises to understand how the various digital

technologies available to them can be utilized to adopt better measures to cope with the global market challenges (Islam *et al.*, 2020) imposed by COVID-19 and other future environmental shocks. Furthermore, this research has practical implications for small and medium-sized enterprises (SMEs), policymakers, and development agencies. This study will contribute to the development of the policies and programs for the promotion of digital usage of SMEs, which will provide growth and development in the country (Rahman & Ahmed, 2020).

2. Literature Review

Overview of Digital Technology Adoption

Digital innovation is a process of understanding technology and implementing it to make your business more efficient, competitive, and innovative. The digital era requires every organization to address the challenges and benefits associated with successfully implementing digital innovation for the survival and transformation of Small and Medium Enterprises (SMEs). The introduction of advanced digital technologies has shown a positive effect on customer engagement, operational efficiency, and larger market access (Soomro *et al.*, 2024). Nonetheless, significant variation exists in the adoption of these technology groups both worldwide and across different sectors, which may be attributed to access to resources, managerial ability, and external pressure (Shahadat, 2022).

Challenges and opportunities of SMEs in Bangladesh

SMEs in Bangladesh collaborate with many individuals to generate income in every local area, and these enterprises collectively contribute more to GDP than the combined output of many countries; furthermore, all entrepreneurs are working towards economic growth. Yet these enterprises struggle with financing barriers, infrastructural hindrances, and skilled professional shortages (Khan, 2021). However, the digital era enables small and medium enterprises to overcome these constraints. The rise of mobile internet and affordable smartphones has enabled SMEs to find ways to attract customers, streamline processes, and scale their businesses (Thbusinesses23). Government initiatives like Digital Bangladesh Vision 2021 aim to

assist SMEs in accomplishing their digital transformation (Bangladesh, 2023).

Barriers to Digital Adoption in SMEs

There are numerous hurdles for digital adoption processes in Bangladeshi SMEs. Access to adequate financial resources is the most significant challenge faced by SMEs, as they generally cannot afford to invest in the digital technologies (Rahman & Ahmed, 2020). Poor digital literacy among SME owners and their employees exacerbates this challenge, hindering the effective use of digital tools (Nazir & Roomi, 2020). Deficits in infrastructure, such as poor internet connectivity and inadequate technical support, exacerbate these challenges (Hossain & Ali, 2022). Moreover, the lower latencies in the acceptance of digital technologies are exacerbated by cultural inertia and the perception of risk related to the use of digital technologies (Basit, 2024).

SME's digital adoption enablers

However, SMEs have only a few enablers pushing them for digital adoption. Developmental programs provide updates on the status of recorded programs and policies (Bangladesh Computer Council, 2023). That is why the extent of government support in terms of incentives, training programmers, and infrastructure (the inclusion) depends on the roles the government played as programmers and policy adaptors. The growing affordability of digital platforms and digital services has significantly reduced the entry barriers for SMEs (Thakur, 2023). Additionally, the realization among SMEs about the advantages provided by digital technologies, especially an increase in efficiency, competitiveness, etc., has boosted their use (Hossain & Ali, 2022). Partial SMEs receiving assistance from technology providers and industry association's view challenges related to digital perception as less daunting (Soomro *et al.*, 2024).

Digitalization Strategic Responses

The study outcomes explain the different strategic responses of the Bangladeshi SMEs regarding their digital transformation. A few of them have begun to drive their endeavors with digital advertising campaigns to achieve more extensive openness, and some are prompted by e-trade solutions to establish outer deal channels for their enterprises (Thakur,

adoption, including innovation, communication channels, time, and social systems.

Innovation Characteristics: Rogers, (2003) identifies five key characteristics of innovations that influence their adoption

- **Relative Advantage:** The perceived benefits of the innovation over existing solutions.
- **Compatibility:** The degree to which the innovation is consistent with potential adopters' values, experiences, and needs.
- **Complexity:** The perceived difficulty of understanding and using the innovation.
- **Trialability:** The degree to which an innovation can be tested before full-scale adoption.
- **Observability:** The degree to which the results of an innovation are visible to others.

Therefore, digital technologies that are seen to have a relative advantage (e.g., cost-saving, providing more customer reach) and compatibility with the existing work practices can facilitate the adoption of digital technologies by the Bangladeshi SMEs (Rogers, 2003). Moreover, the pandemic has led to awareness of these innovations, catalyzing SMEs to adopt them sooner rather than later.

Adopter Categories: Adopter Categories Rogers, (2003) classified adopters into five categories: innovators, early adopters, early majority, late majority, and laggards. Awareness of the categories enables you to ascertain precisely which SMEs are most likely to go digital first and which ones would take a little more time and support. We found this model useful because it explains the variations in the adoption of digital technology among small and medium enterprises in Bangladesh: technology-dominant enterprises are early adopters of e-commerce, digital marketing, and digital payment systems, while others seem to be adopting the same technologies later when those technologies become common (Norris & Prasad, 2018).

Resource-Based View (RBV)

The Resource-Based View (RBV) theory in strategic management asserts that a firm's competitive advantage stems from its internal resources (Barney, 1991). According to the RBV perspective, firms with unique, valuable, rare, and imperfectly imitable resources are

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able to adopt value-creating firm-level strategies that are neither simultaneously nor easily reproduced by competitors of other firms (Peteraf & Bergen, 2003). SMEs view digital technologies as crucial resources in their pursuit of a competitive edge in the highly competitive global market.

Tangible and Intangible Resources: Using digital technology and maintaining a digital product or service requires physical infrastructure, including financial capital. In addition to the above, there are also intangible resources such as organizational culture, human capital (skills, knowledge), and technological know-how. According to Zahra *et al.* SMEs based in Bangladesh also depend on having adequately skilled employees and the culture of change embraced in the corporate purview, which plays a crucial role in making the digital transformation of the SME a success (2006).

VRIN Framework: Barney, (1991) introduced the VRIN framework, which evaluates the resources of a firm based on four criteria

- **Valuable:** Resources must create value for the firm.
- **Rare:** Resources must be unique and not easily found in competing firms.
- **Inimitable:** Resources must be difficult to imitate.
- **Non-substitutable:** There should be no equivalent resources available.

Digital technologies that can improve operational efficiency or engage customers offer a total advantage for Bangladeshi SMES. However, leveraging these technologies to the fullest degree only occurs when the right combination of physical and non-physical capital is in place. In contrast, the probability of successful adoption of digital technology is higher due to strong technological resources, management capability, and prevalent innovative culture among digital SMEs (Madhavaram *et al.*, 2015).

3. Methodology Research Design

Using a qualitative research strategy, this research study was designed to investigate barriers, enablers, and the strategic responses of SMEs in the adoption of

digital technology in the post-COVID-19 period in Bangladesh. Methods: Qualitative data were collected through interviews with local SMEs in Bangladesh to achieve this objective. Results The findings reveal that the principal barrier categories in the adoption of digital technology among local SMEs are technology, information, and law enforcement; however, motivational internal factors (recognition of employees), motivational-based strategies, and government provision are the main enablers that support and facilitate the adoption of digital technology during post-COVID-19 periods by SMEs. Qualitative research designs offer a unique opportunity to explore the perceptions, lived experiences, and challenges that SMEs face when adopting digital technology. The aim of the design is not statistical generalization but more profound insights into how SMEs perceive and adopt digital innovation (Creswell, 2014).

Using a multiple case study approach with individual SMEs corresponding to the equivalent of cases, we use this ethnography to offer analysis across a range of contexts, approaches to strategy, and digital outcomes of interest within an established theatre of practice (SMEs) for digital transformation. To examine the micro-level factors that influence the adoption of digital technologies, this research will attempt to generalize findings across several sectors (manufacturing, retail, and service) using case studies (Yin, 2018; Akter, 2020). Semi-structured interviews with the key decision-makers operating within these SMEs will also be the principal standard method for data collection.

Sampling and Data Collection

The study uses purposive sampling since the researchers surveyed SMEs that had already adopted or were in the process of adopting a digital technology in the face of the challenges of COVID-19. Since they need to have firsthand experience related to the research topic, purposive sampling is appropriate in choosing the sample with the particular characteristics (Palinkas *et al.*, 2015). The study includes SMEs that meet the following criteria:

- We include SMEs that actively participated in the digitalization process during or after COVID-19.
- Business sizes ranging from micro to large enterprises in specific sectors so that they could

represent Users from different perspectives across different size groups whilst keeping the range possible and limiting the effort expended for this study object, and all operating in urban and semi-urban areas of Bangladesh to correspond with both the limited access to extensive digital infrastructure and the general challenges encountered by SMEs in different geographical settings.

- SMEs from various industries, such as manufacturing, retail, and services, will contribute to a comprehensive understanding of digital adoption across various domains.

Data will be collected through semi-structured interviews with key informants such as business owners, managers, and IT professionals. These interviews will give us in-depth insights into the reasons, the challenges, the approach, and the response to COVID-19 of the digital adoption journey of the SME. They will be taped for transcription and analysis. The semi-structured interviews offer flexibility, enabling the researcher to delve deeper into specific areas while maintaining the primary focus of the research objectives (DiCicco-Bloom & Crabtree, 2006).

Data Analysis Techniques

The quantitative data will be thematically analyzed, which is one of the most popular methods for qualitative data analysis because it identifies themes or patterns within the data (Braun & Clarke, 2006). The latter method is a suitable approach for getting insights into the complex, context-dependent phenomenon of SMEs' digital adoption. This is the process that will be followed for thematic analysis

- Familiarization with data: Transcribing the interviews and reading them repeatedly to familiarize and fully comprehend the data.
- Initial Coding: Reading the transcripts to segment those which are meaningful into initial codes related to barriers to adoption, enablers, and strategic response
- Theme creation: I identified clusters of codes into larger categories to reflect important components of digital adoption in SMEs.
- Reviewing Themes: Which themes were reviewed together, which were discarded, what was the merit & why? We refine and then

reassess the themes to confirm their accuracy in representing the data. The importance of themes to the research question

- **Defining and Naming Themes:** Defining and Naming Themes We will clearly define and name the themes to weave a story about the obstacles, facilitators, and tactical reactions to digital transformation.

Organization, coding, and visualization of the data are facilitated through the use of qualitative data analysis software (e.g., NVivo), which will be employed to assist in the thematic analysis. This would provide a framework for an analytical approach to data sets that encourages openness and rigor.

Ethical Considerations

The study's ethics (the chapter's third section or part of the scenario response) are key to protecting participants' rights and ensuring fidelity in the research process. This analysis encompasses a few significant ethical challenges, which consist of

- **Informed Consent:** To begin with informed consent, Participants will receive an informed consent form that explains the research's purpose, that participation is voluntary, and that their responses will be kept confidential. Participants will be provided an opportunity to ask any questions and leave the study at any time without penalty.
- **Secrecy and anonymity:** Interview information will be treated privately, and the name of any interviewee will be kept secret too. The research results will be reported or published without any personally identifiable information.
- **Confidentiality:** All interviews will be digitally recorded and stored in password-protected files, available only to the research team. Transcripts and analysis will be separated for the sake of privacy regarding our participants.
- **Non-Bias:** The research team will strive to ensure that data collection, analysis, and interpretation are as free from bias as possible. The interview will adopt a more open-ended, semi-structured format, allowing participants to freely express themselves without the interviewer making any presentations.

By Taking into Account the Above Ethical Overhead, the present study ensures that it adheres to the protocol of ethics research and maintains all the rights and dignity of subjects being included.

4. Results

Demographic information

Participants in the survey covered various industries and geographical landscapes, as well as enterprise sizes and levels, providing a representative picture of the duplication of the SME industry in Bangladesh. Lastly, the demographic information is important for understanding the context of the findings regarding barriers, enablers, and strategic responses to the adoption of digital technologies.

Industry Sector

Of the 400 SMEs surveyed, the two largest group divisions were from the retail and service sectors, with 35% of respondents being in the retail sector and 30% in the service sector. Reflective of the overall SME context in Bangladesh, the sector is primarily dominated by retail- and service-based SMEs. Only 1 in 5 respondents belonged to the Manufacturing sector, stressing that while manufacturing is an important component of the economy, it may have lower digital adoption than service-oriented businesses. The 5% share that was dedicated to the IT sector says 10% was taken from the other business slice, but as a whole there were some differences in between, being well-defined or low-defined sectors that were involved in the digital adoption practice.

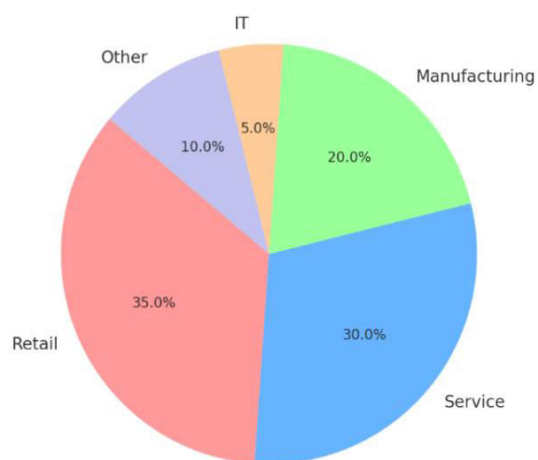


Fig. 2: Industry Sector Distribution among SMEs.

Geographical Location

According to the survey, the majority of the SMEs were situated in urban areas (55), followed by urban (30) and rural (15) areas. This distribution seems to match the presence of SMEs in Bangladesh, as most are in urban areas like Dhaka and Chittagong, which have more access to infrastructure and digital technologies. Conversely, rural SMEs were included in the survey, indicating that digital adoption efforts are extending to less urbanized areas; however, these businesses may encounter more barriers due to a lack of infrastructure.

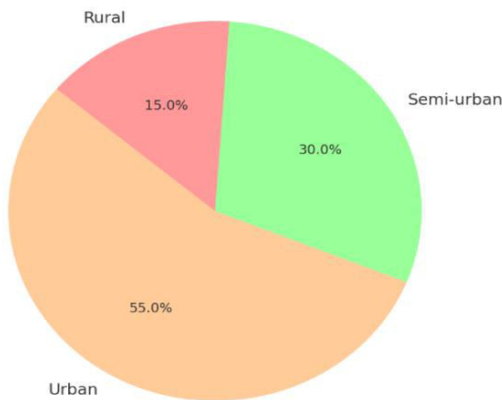


Fig. 3: Geographical Location Distribution among SMEs.

Size of the Enterprise

In terms of company size, half of participants were from small enterprises with less than 40 staff. The bulk of Bangladeshi businesses are small-scale, as is typical of the SME sector. The next largest group, 30%, were medium-sized enterprises with 41–100 employees, and 15% were from the largest of SMEs with 101–250 employees associated with them. Only 5% were larger small and medium-sized enterprises (SMEs), with over 250 employees. As a result, it indicates that most businesses in the SME sector of Bangladesh are small- to medium-sized businesses, while larger-scale businesses are an outlier.

Position of Respondents

With respect to the role of respondents, 40 percent were owners of their SMEs, which shed light on the decision-making surrounding technology adoption. Another significant finding is that managers made up 35% of the respondents, making them the second

largest group; they frequently serve as the day-to-day decision-makers for installing digital tools and processes.

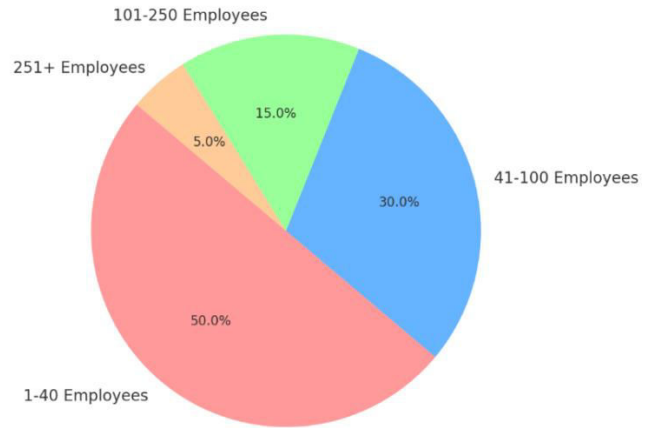


Fig. 4: Size of the Enterprise Distribution among SMEs.

Digital infrastructure set up and operated by internal teams was cited by 15% of respondents as being the domain of IT staff, suggesting fewer SMEs have dedicated personnel for their digital infrastructure, although the decline could also be due to the size and resource limitations of this sector. The "Other" category, which included external consultants or other key players in the implementation process, employed the remaining 10% of respondents.

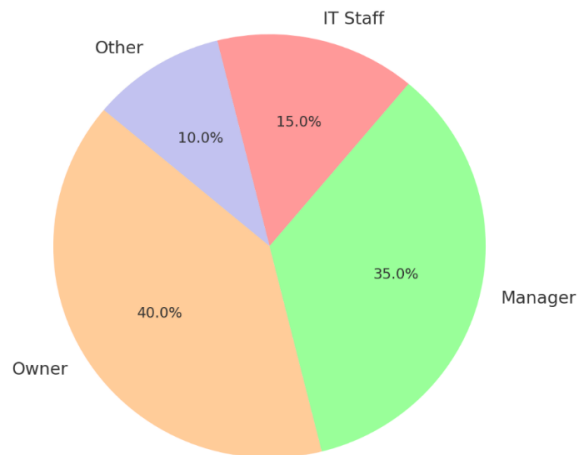


Fig. 5: Position of Respondents in SMEs.

Demographic data offers a glimpse of context that helps understand the findings of the study and represents the diversity of SMEs in Bangladesh. The named respondents are chiefly small- to medium-sized

enterprises, mainly from the Retail and Service sectors, and predominantly from urban areas.

Moreover, as the survey covered a high percentage of owners and managers, decision-makers that are essential to digital transformation are also represented by the data. Such demographic information provides context for the investigation of barriers, enablers, and strategic responses to the adoption of digital technology in SMEs in Bangladesh.

Barriers to the Adoption of Digital Technologies

The survey revealed some major barriers for Small and Medium Enterprises (SMEs) in Bangladesh to adopting digital technologies. These barriers were scored as per the Likert scale from 1 to 5 (1 strongly disagree and 5 strongly agree for each barrier). This analysis highlights the primary obstacles that hinder SMEs in Bangladesh from successfully undergoing their digital transformation journey.

Financial Constraints

Not surprisingly, the biggest barrier the survey identified was affordability, with an average score of 4.2/5. The implication is that SME deployments have trouble finding sufficient capital to deploy digital tools and infrastructure. Even with all the benefits of digital technologies, a lot of SMEs do not have capital to spend on robust systems like enterprise resource planning (ERP), digital marketing platforms, or secure payment systems. But this is consistent with Rahman & Uddin (2020), who found that cost is a major barrier for SMEs in developing countries like Bangladesh.

Lack of Skills

The absence of digital skills was rated 3.9/5, making it the second most important barrier. Most SME owners and workers have very little exposure to digital educational technologies. Even when digital tools are available and inexpensive to use, this creates a barrier to their effective utilization. The lack of SME skilled IT professionals in the field of development and support activities creates difficulties in implementing the new systems, as SMEs have few numbers of people in the development team, whereas large organizations may have a lot of people within their teams. This echoed the observations of Hossain & Ali, (2022) that unavailability of skilled human capital is

an outstanding barrier to digital adoption, particularly among the SMEs.

Infrastructure Issues

Another leading reason for an average rating of 3.7/5 is infrastructure limitations such as unsustainable internet connection and adequate power supply. Although the Trusted Internet is more accessible in urban regions, small and medium-sized enterprises (SMEs) in semi-urban or rural areas continue to face significant challenges with connectivity and power outages. This barrier aligns with the findings of Mahmud *et al.* (2022), which indicate that identified infrastructure problems are especially harmful to companies located outside of large cities.

Resistance to Change

It was also found that the resistance to change barrier ranked relatively high at 3.5/5 in this study. This speaks more about SMEs' inability to migrate to new technologies due to long habits of old-school business methods. One major reason SME owners and employees are hesitant to use digital tools is that they are worried that digital tools will not work or take too long to learn, disrupting their current operations.

This is in accordance with the findings of Khan *et al.* On a note relating to the Bangladesh SME sector, the role of organizational culture and change aversion has been confirmed as critical barriers affecting the way of digital transformation (Mi and Lun, 2021).

Cybersecurity Concerns

Cybersecurity concerns Average rating: 3.3/5 Roundly third on our list but a long way off from the first Most SMEs are afraid that using digital technologies might put them in danger from cyber threats such as data breaches, hacking, and fraud, especially in the case of e-commerce and online payments. Due to their small size and fewer resources, SMEs are unable to invest in strong cybersecurity systems, making them vulnerable to any security threats. This further corresponds to Ahmed & Hossain, (2021) who reported that one of the most important issues that SMEs of Bangladesh face in their digitalization journey is cybersecurity.

The findings of the survey indicate that the major impediments to the adoption of digital technology in

Bangladeshi SMEs are financial constraints, lack of skills, and infrastructure problems.

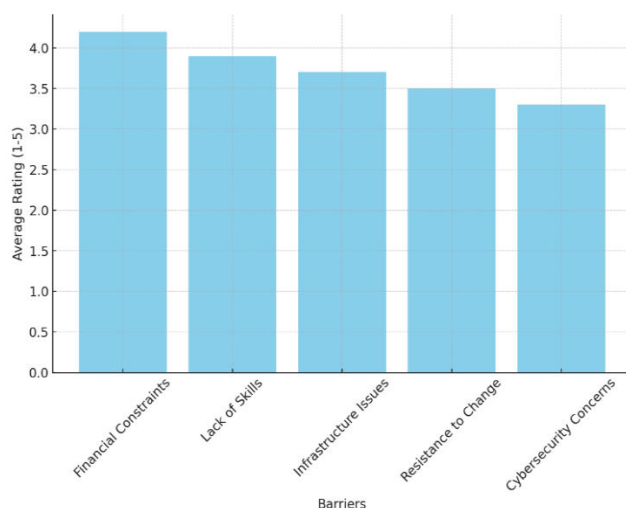


Fig. 6: Barriers to Digital Technology Adoption among SMEs.

Resistance to change and concerns around cybersecurity are often cited as additional barriers, but the crux of the problems lies in lack of finance and skills, which will always present as more pressing issues than the others. Such barriers highlight the importance of targeted interventions, like government investments in digital infrastructure and encouragement of workplace upskilling programs, as well as financial initiatives to assist SMEs in covering the initial costs of going digital.

Factors that Facilitate Digital Technology Adoption

Accordingly, apart from the barriers, the survey also highlighted a handful of enablers that assist the use of digital technologies by SMEs in Bangladesh. Respondents rated these enablers on a 5-point Likert-type scale from strong disagreement to strong agreement (1=strong disagreement, 5=strong agreement). The results appear to indicate that, even with the impediments, several aspects have played a major role in SMEs adopting digital apparatus and techniques.

Government Initiatives

Government initiatives emerged as having one of the highest levels of support for enabling the adoption of digital technologies, averaging 4.3/5. Large-scale initiatives like Digital Bangladesh Vision 2021 offered digital adoption subsidies and grants, and the SME

Foundation has run numerous digital training programs and promotional campaigns. Furthermore, the government efforts to enhance internet infrastructure and lower the costs of digital tools have allowed easier accessibility to SMEs. This is consistent with the Bangladesh Computer Council (2023) finding, where they stated that public sector-led initiatives can significantly speed up digital adoption among SMEs.

Competitive Awareness

One more clear enabler was competitive awareness, which averaged a tremendous 4.1/5. In Bangladesh, SMEs are now realizing the importance of digital technologies to be competitive in the market. A large part of the business community has seen how early adopters had successfully reached new markets, cut costs, and improved customer relationships using digital tools. The realization of this importance has driven various SMEs to take on technologies, and this is a priority for e-commerce and to use digital payment systems to efficiently compete. Market competition that is responsible for many SMEs investing in digital technologies also was emphasized by Norris & Prasad, (2018) stating that SMEs, in order to maintain or elevate their competitive position in the market, adopt digital technologies.

Training Programs

The second important enabler was employee training programs, rated with an average of 3.8/5. According to the survey, SMEs investing in training programs were more likely to adopt digital technologies with better success. Funded by government and private sector efforts, these training programs upskill workers on everything from digital marketing tools to e-commerce platforms to cloud-based systems. In turn, Rahman & Uddin, (2020) highlighted the crucial role training plays in overcoming the digital skills gap, with a finding that companies with better-trained staff are able to adopt the technology effectively.

Partnerships with Technology Providers

The average rating for partnerships with tech providers also came in at 3.6/5, making it another key enabler. Numerous SMEs have worked with IT companies, e-commerce conglomerates, and fintech firms to provide digital resources without requiring significant investment in infrastructure. Such collaborations enable

SMEs to implement off-the-shelf solutions like digital payment systems, inventory management tools, and customer relationship management (CRM) software. Mahmud and his colleagues conducted a study. According to (2022), such partnerships have allowed small and medium-sized enterprises (SMEs), especially in retail and services, to embrace digital solutions faster and at lower costs.

Benchmarking and Peer Influence

The survey data rates benchmarking and peer influence as the third most common enabler with an average rating of 3.4/5. The uptick in usage of these tools was greater among those SMEs that had watched other SMEs that looked like them or were similar in competitive nature successfully adopt these digital technologies. The social and peer influence effect is another important reason for increased business interest in following the digital transformation trends set by industry leaders and local competitors. Rogers, (2003) also indicated that social networks and peer influence significantly impact the diffusion of innovations, which is especially relevant for SMEs.

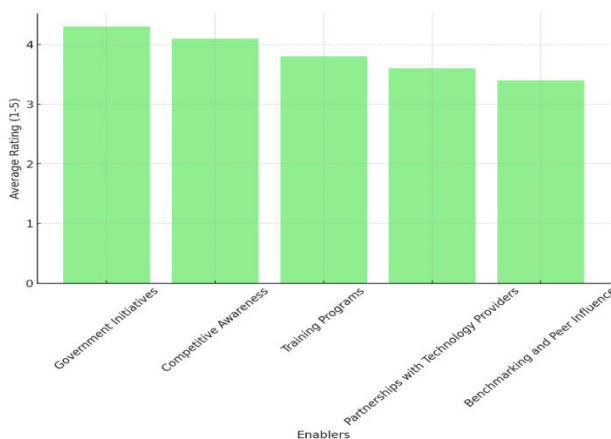


Fig. 7: Enablers of Digital Technology Adoption among SMEs.

The findings show that government initiatives, competitive awareness, and employee training distinguish the strongest enabling factors of digital technology adoption for SMEs in Bangladesh. This program particularly reduces the barriers for SMEs in adopting digital tools, providing measures such as financial incentives, increasing awareness of competitive benefits, and training the workforce. Equally, these have been accompanied by partnerships with technology

providers and peer influence, further supporting the momentum for accelerating digital adoption, enabling SMEs to circumvent some of those resource constraints, and drawing inspiration from the success of others.

Strategies to overcome hurdles

Recognizing these constraints (as discussed in preceding sections) faced by digital technology adoption, various SMEs in Bangladesh have pursued a series of strategic responses that have subsequently been adopted by many businesses. Using the survey data, we examined these responses in detail to explore how SMEs had tactically maneuvered challenges, including financial constraints, skills shortages, and structural issues. According to the survey, several key strategies that SMEs are using help them mitigate barriers and strengthen their digital transformation efforts.

Phased Implementation

For example, phased implementation of digital technologies was one of the more frequently mentioned strategies in the survey. Many SMEs selected this approach, as it is aligned with a high percentage of yes/agree responses and enables SMEs to take the route of gradual introduction of the digital tools rather than the rollout of large-scale investment in one go. This approach aims to alleviate the upfront costs and enables organizations to evaluate if any of the technologies are successful before plowing additional resources into scaling them. Approximately 60% of SMEs said that they were adopting digital technologies in stages, starting with low-investment, high-impact solutions such as social media marketing or cloud storage, and then gradually moving on to advanced systems such as Enterprise Resource Project (ERP) or customer relationship management (CRM) software solutions. This process makes it easier for businesses to budget and ease themselves into the digital tools at their own pace.

Employee Training

Seventy percent of SMEs reported training their employees to get new skills, another commonly adopted strategy. The training programs specialize in providing digital tools, like social media platforms, e-commerce solutions, digital marketing payroll hacks, and social media platforms. Many SMEs collaborate

with local training organizations or government initiatives to enhance the skills of their employees, enabling them to fully utilize the advanced technologies under deployment. This data coincides with the results of Rahman & Uddin, (2020) who stated that the extent to which businesses adopt or maximize the use of digital technologies highly depends on the choices they made earlier in relation to investing in digital skills training. Providing employees with expertise enhances their technical capabilities, enabling SMEs to conquer the skills gap obstacle and promote an innovative environment inside the organization.

External Collaboration

The report goes on to state that another frequently employed strategic response involved external collaboration with IT service providers, fintech companies, and e-commerce platforms. Half of the SMEs joined forces with an external provider for the implementation and maintenance of digital tools. These partnerships enable SMEs to have access to technology without the requirement of upward investments in infrastructure or knowledge. For instance, SMEs in retail partnered with e-commerce platforms like Daraz to run their stores or with formal digital payment providers like bKash and Nagad to settle payments. Such collaboration strengthens partnerships and empowers SMEs to fill the gap between financial and technical resources. Mahmud and his colleagues conducted a study. According to (2022), these partnerships allow small and medium-sized enterprises (SMEs) to use off-the-shelf, custom-fit solutions, and thereby simplify and make the digital adoption process more affordable.

Cybersecurity Measures

Due to ever-increasing cybersecurity concerns, 40% of SMEs stated that they have taken basic cybersecurity actions as part of their digital adoption plans. Such measures included investing in secure payment gateways, installing firewalls, and encrypting data, as well as conducting employee training on cyber-related risks. SMEs that prioritized business protection were also more inclined to adopt digital practices, bolstered by their increased confidence in the relative safety of their systems and customer data. This result goes in line with what Ahmed & Hossain, (2021) discovered: that the security concerns often inhibit the SMEs from Universe PG | www.universepg.com

using the digital tools only partially, and if these concerns are addressed prior to the implementation of digital adoption, it would greatly smoothen the process.

Customer-Centric Digital Strategies

About a third of SMEs earlier have travelled down the customer-first digital journey, albeit a smaller, but material, portion of organizations. From e-commerce to digital customer support to digital marketing. Using a customer-first approach, SMEs benefit from creating digital experiences that are more in line with how customers expect to interact with the brand, boosting engagement and loyalty. These tactical responses enhance customer experience and help SMEs in gaining a competitive edge in a saturated market. Customer-centric strategy has emerged as the most critical brand strategy, as businesses at a global scale are now using digital tools to improve customer experience.

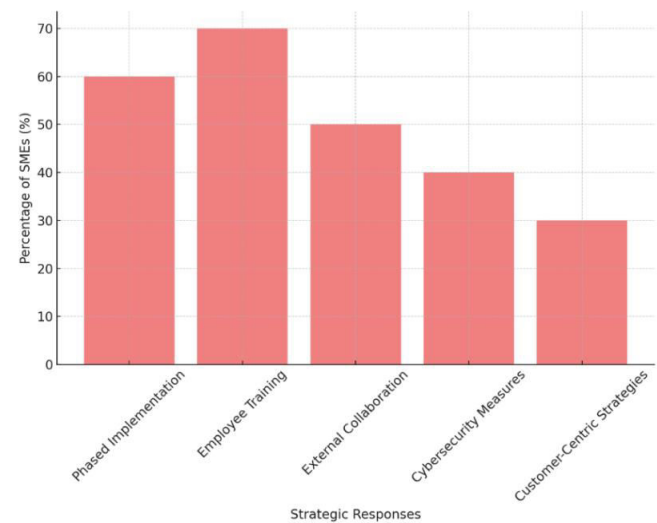


Fig. 8: Strategic Responses to Overcome Barriers to Digital Adoption among SMEs.

The survey findings indicate that Bangladeshi SMEs are using diverse strategic responses to overcome barriers to digital adoption. Phased Deployment, Staff Training and External Collaboration with Technology Providers are among the most common strategies. Although fewer SMEs are adopting advanced cybersecurity tactics or intentionally customer-focused digital strategies, those that do are significantly better equipped to address concerns and foster a more sustainable digital transformation.

Post-COVID-19 Changes in Digital Adoption

The COVID-19 pandemic has significantly affected SMEs around the world, with businesses forced to adjust rapidly to shifting market situations. The pandemic has spurred digital transformation in our country, Bangladesh. The survey results below illustrate some digital adoption changes post-COVID-19 and how SMEs have adjusted their operations and strategies to cope with the disruption of the pandemic.

Increased Digital Adoption

One of the key insights from the survey is the increase in digital adoption after COVID-19. Approximately 70% of SMEs experienced a moderate to rapid increase in digital adoption; this stems from the need to maintain business continuity amid the pandemic. The rise in adoption was especially visible, for example, in e-commerce, digital payments, and remote working tools. Small and Medium-sized Enterprises (SMEs) that were lingering and reluctant to embrace digital tools were compelled to do so to survive through the lockdowns and the imposed distance measures. This conclusion is in accordance with the findings of Islam et al. SMEs worldwide rapidly adopted digital solutions to maintain operations due to the restrictions imposed by the pandemic (2021). The survey further revealed that nearly 30% of SMEs demonstrated strong performance in remote engagement with their clients, while 40% reported a moderate increase in this area. Despite accelerated digital adoption in the digital economy, some sectors and businesses still face significant barriers to digitalization.

Areas of Digitalization

In addition, the survey investigated the particular areas of business that underwent the most digitization to address COVID-19. Results indicate that mainly, digital marketing and e-commerce are the most affected areas amongst SMEs, with 60% of them reporting an increase in digital outreach. This change is a consequence of the pandemic that made physical stores close or limit operation, side by side with the increasing need to access customers online. Adoption (or increased adoption) of digital payment systems grew as well, with 50% of SMEs facilitating or improving upon digital payment systems. Pandemic-driven contactless transactions and the growth of e-

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commerce likely propelled this trend. Furthermore, the implementation of remote working tools surged, with 7 out of 10 SMEs having implemented or enhanced digital platforms that facilitate remote collaboration and communication. This concept refers to our newfound reliance on digital spaces, which has been partly driven by the need to adapt operations during the pandemic. It is interesting to note here that inventory systems and ERP systems also showed moderate adoption among the SMEs, where 30% of them reported integration or upgrading of such systems. This indicates that although SMEs began by implementing digital tools for use with customers, they now also realize the importance of digitalization for internal systems to increase efficiency and effectively manage operations.

Future Investment Plans

On the bright side, the survey suggested that 60 percent of SMEs intended to maintain post-COVID-19 investments in digital technologies, meaning the move towards digital adoption was not merely a one-off reaction to the pandemic but a long-term business strategy. This Sharing Buttons Share on Facebook. Facebook Share on Twitter. Share on LinkedIn. There are several digital tools that small and medium enterprises (SMEs) consider essential for becoming more operationally efficient, expanding to other markets, and increasing customer engagement. Yet 20% of SMEs still express uncertainty about any future investment due to fears of financial limitations and the unpredictable payback of digital investments on a 3–5-year basis. It reinforces the importance of sustained government and industry guidance to enable SMEs to make the right choices about digital adoption and acquire the necessary means for constant digitization moves.

Barriers to Post-COVID Digital Adoption

However, there are still numerous obstacles to overcome in the post-COVID world. Access to the necessary funding and digital skills remains the key barrier for many SMEs. It found that while the pandemic fast-tracked digital purchases, high technology costs and a shortage of qualified personnel are still major barriers. Challenges in scaling or sustaining such systems encountered by many SMEs that have successfully adopted digital tools often lead to a lifting

of such systems since they are generally resource constrained or do not have access to continuous support.

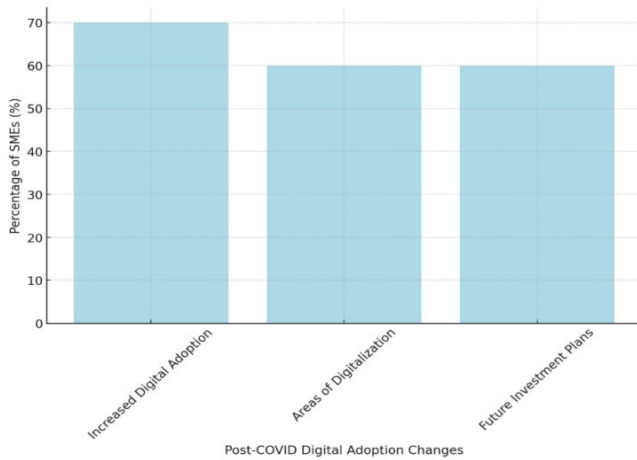


Fig. 9: Post-COVID-19 Changes in Digital Adoption among SMEs.

The COVID-19 pandemic has accelerated the digital transformation of Bangladesh's SMEs. Digital technologies are becoming critical for business continuity and growth for SMEs, with e-commerce, digital payments, and remote working tools becoming the most highly digitalized sectors. Despite positive digital adoption during the pandemic, limited financial resources and skills gaps hinder progress. Looking ahead, many SMEs also intend to maintain and even upscale their digital investments, suggesting that digitalization will be one of the most important pillars in the post-pandemic economy.

5. Discussion

Interpretation of Key Findings

Information from this research offers insightful perspectives on the adoption of digital technologies by Bangladeshi SMEs, especially regarding the barriers, enablers, strategic responses, and changes post-COVID-19. Here is an overview of the main findings and what you can take away from them:

Barriers to Digital Technology Adoption

Third, the survey identified three major hurdles cost, knowledge, and infrastructure that Bangladeshi SMEs face in adopting digital technology. These barriers are in line with the findings of global data, where the limited financial capacity of SMEs is the single most important category of criteria determining their access

to new technologies. The initial expenditure involved in these digital tools, along with the absence of internal resources to run the technologies, is a massive hindrance for Bangladeshi SMEs. This is especially true for semi-urban and rural SMEs, which further complicates the challenge due to their unreliable internet and power supply. Another reason for restricting SMEs from adopting the digital tool was cybersecurity issues, as they were reluctant to do so because they feared data breaches and online fraud. This is a key finding, as it shows that businesses cannot adopt digital tools without data security. This aligns with the results of Ahmed Hossain, (2021) which found that cybersecurity is still a serious issue affecting SMEs from fully adapting digital solutions.

Enablers of Digital Technology Adoption

The survey results also highlight key enablers that have facilitated a smoother transition to digital technologies, despite the numerous barriers to digital adoption. We discovered that government initiatives, particularly the Digital Bangladesh Vision 2021, had the greatest positive impact. The government aims to reduce this financial barrier for SMEs through subsidies, training programs, and similar initiatives. Similar results were observed in prior studies (Bangladesh Computer Council, 2023), which found that public sector initiatives have played an important role in digital diffusion in the SME sector. The survey also highlighted competitive awareness as another strong enabler. Already Bangladesh SMEs have started to understand that the use of digital tools can provide them a competitive advantage by accessing larger markets, creating new channels for customer engagements, and minimizing the cost of operation. This awareness has propelled the SME sector to begin investing in digital technologies, especially in e-commerce and digital payments. Similarly, the assessment levels and training programs have aided SMEs in addressing the needs of the skills gap. SMEs that reported investing in training for their employees were also more likely to adopt and use digital tools optimally, found the survey. This conclusion points to a need to not only give financial assistance but also to guarantee that workers are equipped with accompanying skills to extract as much value as possible from digital technologies.

Strategic Responses to Overcome Barriers

Solutions and responses from SMEs to overcome barriers to digital adoption represent a more gradual and practical approach. One of the most common approaches for SMEs was phased implementation, where they started with inexpensive digital tools and scaled up over time. It assists the SMEs in reducing the financial cost and affords them the opportunity to analyze the effectiveness of the digital solutions before investing in much higher prices. SMEs also focused on employee training, as a large number of them were engaged in upgrading their employees' skills. Training programs can not only fill the skills gap but also contribute to employee productivity and innovation, the two major pillars of sustained digital success. Furthermore, several SMEs stated that they had entered into strategic partnerships with technology solution providers (especially for e-commerce and digital payment systems). It reinforces the trend of SMEs outsourcing certain functions to avoid the challenges presented by their internal limitations in this case, the lack of technical infrastructure or expertise.

Post-COVID-19 Changes in Digital Adoption

Bangladeshi SMEs have embraced digital as a catalyst of change, and a considerable number of businesses have stated that their digital adoption has increased post-COVID. The most notable part was the adoption of e-commerce and digital marketing. Small and medium-sized enterprises had to rely more heavily on e-commerce and digital marketing practices to ensure their survival during lockdowns and social distancing measures. The pandemic has brought to light the need for digital resilience among SMEs to weather disruptions, and the result is a transition that is unlikely to reverse in a post-COVID world. The 2022 survey results revealed that while many SMEs responded to the pandemic digitally, 60% planned to continue investing in digital technologies, indicating that SME digital transformation is a sustainable trend.

Findings from Islam *et al.* (2021) pointed out that COVID-19 hastened the changeover of digitization across all fields as many organizations came to recognize the need for these tools to continue business and evolve.

Implications for SMEs and Policy Makers

Above all, the highlights drawn from the findings have important policy implications for SMEs and policy-makers. Digital adoption has become a crucial requirement for SMEs to maintain their competitiveness in the market and stay ahead of the competitive landscape. To move in this direction, SMEs would have to place a strong emphasis on acquiring digital skills and continue relying on outside assistance through collaborations with technology vendors as well as government programs. Moreover, SMEs must make use of financial incentives to access the ecosystem to lower the cost of digital adoption. These findings have important implications for policymakers, specifically that they need to continue investments in digital infrastructure in semi-urban and rural areas and that there is a need for further information security awareness and training. Policy-makers need to aim for an ecosystem in which financial solutions deliver capital and drive long-term, strategic digital investments by SMEs to help them harness the full potential of digitization for sustainable growth. The survey suggests that, despite the significant barriers to digital adoption for SMEs in Bangladesh, there are many enablers and strategic responses that support these businesses in overcoming those challenges. The growing consumer behavior towards adopting digital solutions post COVID-19, provides a tremendous opportunity for SMEs to become more digitally resilient and competitive in an ever-digitizing economy. With effective leadership, SMEs can adapt to the evolving digital landscape and improve their contributions to Bangladesh's growth, which they have already begun to do.

Comparison with Existing Literature

Key Aspect	Survey Findings	Existing Literature
Barriers to Digital Adoption	Financial constraints (4.2/5), lack of skills (3.9/5), infrastructure issues (3.7/5), cybersecurity concerns (3.3/5)	Rahman & Uddin, (2020) and Mahmud <i>et al.</i> (2022) identify financial constraints and skills gaps as key barriers; cybersecurity concerns also reported by Ahmed

		& Hossain, (2021)
Enablers of Digital Adoption	Government initiatives (4.3/5), competitive awareness (4.1/5), employee training (3.8/5)	Government support (Digital Bangladesh Vision 2021) highlighted by Bangladesh Computer Council (2023); training programs and competitive pressures also emphasized in Norris & Prasad, (2018)
Strategic Responses	Phased implementation (60%), employee training (70%), external collaboration (50%)	Similar strategies observed in Sultana & Karim, (2022) and Mahmud <i>et al.</i> (2022); cybersecurity response aligned with Hossain & Ali, (2022)
Post-COVID-19 Changes	70% of SMEs experienced increased digital adoption, especially in e-commerce, digital payments, and remote working	Alignment with Islam <i>et al.</i> (2021) on the impact of COVID-19 on digital transformation; long-term digital adoption supported by Klein, (2021)
Gaps in Literature	Customer-centric strategies (30% adoption), cybersecurity measures (40% addressing concerns)	Customer engagement is often prioritized globally (Teo, 2011); cybersecurity adoption is low despite high awareness, as noted in global studies

In comparing the survey findings with existing literature, we conclude that although the SMEs in Bangladesh may experience many of the same challenges and leverage similar enablers as other developing economies, there are unique features of the SME landscape in Bangladesh.

The result raises the possibility that government initiatives, competitive pressures, and training programs are important tools to speed up digital transformation. But the high costs, shortage of skills, and cybersecurity fears continue to be important obstacles. Studying the aforementioned challenges and providing appropriate policy interventions and support systems is crucial to assist SMEs in leveraging digital tools that can propel them towards sustainable growth.

Specific Impacts on SMEs in Bangladesh

This research gives useful advice to SME organizations in Bangladesh for improving their adaptation to digitalization. Digital adoption is emerging as a key driver for organizations to ensure business continuity and business growth, and therefore unlocking the barriers, enablers, and the type of strategic responses identified in the survey becomes increasingly important for SMEs to harness competitive advantage in an evolving digital landscape.

Breaking the Financial Barrier to Going Digital

Among the survey respondents, one of the most notable obstacles highlighted is pressure on finances for SMEs. Many businesses, with missing access to capital, encounter it difficult to invest in digital technologies, notably complex systems including

Enterprise Resource Planning (ERP) or customer relationship management (CRM) software.

Implication for SMEs

Since financial limitations are a major challenge to the growth of managed service solutions, SMEs in Bangladesh have to opt for reasonably priced digital solutions that provide scalable options. Cloud-based solutions that require low upfront investment and use pay-as-you-go pricing models can also be a workable substitute for many small and medium-sized enterprises (SMEs). SMEs should also save government incentives and training programs focused on subsidized digital adoption costs. Collaboration with technology providers and fintech firms through strategic partnerships can ease SMEs into reasonably priced tools without hefty initial investment.

Bridging the Digital Skills Gap

Another major obstacle identified in the survey results was the lack of digital skills among employees. This gap between what companies have and what they could be using can be painful and forces businesses to fall short of maximizing the value of technology. According to the survey, SMEs were more successful in adopting digital technologies if their employees had access to training programs.

Implication for SMEs

Employee training and upskilling should be at the heart of the digital transformation agenda for SMEs. This way, SMEs can create in-house experts capable of managing digital tools on their own by training employees and upskilling the workforce. Authorities

should collaborate with local training centers, apply to government-sponsored programs, and take courses in relevant digital-related instruments (e.g., e-commerce, digital marketing, and data analytics), all of which will strengthen their workforce.

Moreover, SMEs must explore tie-ups with educational institutes to design niche training programs focused on skills needed for their industry segment to nurture a steady talent pool of digital-ready resources.

Addressing Infrastructure Challenges

Small and medium enterprises (SMEs), especially those in semi-urban and rural regions, often lag when it comes to infrastructure; poor internet and power supply are just a few examples of this gap. Due to these limitations in infrastructure, the survey also revealed that urban businesses were better placed to take up digital technologies than rural businesses.

Implication for SMEs

At the local infrastructure level, SMEs based in rural or semi-urban parts can look to mobile-based applications and offline-first tools that need a few minutes of internet availability to reduce infrastructure challenges. Working with local governments and telecom operators to provide internet connectivity and investigating solar-energy options can also strengthen capacity building among SMEs in underserved areas. Thus, SMEs need to understand their exact infrastructure requirements while searching for the right digital tools, which must work with the limitations of the Indian market.

Strengthening Cybersecurity Measures

The second barrier relates to cybersecurity concerns, as companies may be too afraid to open up to digital tools for fear of data breaches, fraud, or more serious online security risks, and the third barrier relates to a lack of knowledge in technology and digital tools, which usually prevents companies from new ventures. Results of the national survey found that, although most SMEs were aware of the dangers of cybercrime, only four out of 10 were taking measures to safeguard their digital systems.

Implication for SMEs

Fostering trust and confidence in digital tools requires making cybersecurity a top priority for SMEs. This

may involve the implementation of secure payment gateways, encrypted communication channels, and cyber hygiene training for employees. Another thing SMEs could do is invest in some low-cost cybersecurity software to provide minimum protection against threats, and if possible, look into cyber insurance as well. Bringing external expertise into your organization gives your business the ability to implement robust security measures while avoiding the need to build out huge internal resources.

Exploiting Government Backing and Policy Programs

The government has been instrumental in enabling digital adoption by SMEs with various programs, such as Digital Bangladesh Vision 2021, which provides both financial assistance and online training. But many SMEs might not make the most of these availabilities.

Implication for SMEs

SMEs should take part in government programs to help them adopt digital processes. Subsidy applications, grants and loans for digital infrastructure, and government-based training programs are just a few examples. These resources will help SMEs to defray the cost of digital adoption and provide access to critical areas of digital enablement, such as digital marketing, e-commerce, and cybersecurity. Likewise, SMEs should push for lowering obstacles to digital adoption, such as better internet connectivity for rural areas and reduced taxes on digital products. Industry associations can facilitate SME participation in government programs and advocate for more tailored digital support policies.

Key findings

According to the study, the main digital adoption inhibitors are financial constraints, lack of digital skills, infrastructure, and cyber issues. The study aligns these barriers with previous research on digital adoption in developing countries. The inability to raise funds remains perhaps the most significant barrier; cash-strapped SMEs are still unable to invest in the needed digital backbone. Lastly, the skills gap, particularly regarding technical know-how, poses a challenge to effectively using digital tools, especially for SMEs that have smaller and less experienced teams. On the other hand, the study also found

multiple enablers for digital adoption, such as government initiatives, competitiveness awareness, and the availability of training. SMEs have emerged as the backbone of the economy, supported by successful government policies like the Digital Bangladesh Vision 2021, which focuses on providing financial support, subsidies, and training opportunities. A rising perception among business owners of the competitive benefits offered by digital technologies, including increased market accessibility and operational efficiency, also helped drive increased digital adoption across businesses. Moreover, employee training programs serve as a crucial resource for SMEs, aiding them in effectively utilizing digital technologies to become competitive players in the marketplace.

With respect to strategic responses, the SMEs in Bangladesh have attempted diverse approaches to address the obstacles to digital adoption. The primary approaches involve incremental deployment of digitalization, employee reskilling, and third-party technology collaboration. This approach, designed to replace the big-bang approach, significantly reduces the upfront costs associated with adopting the digital trend and allows SMEs to gradually enhance their digital capabilities. By working with IT service providers or fintech to provide affordable tools for digital channels, SMEs can reduce the need to invest heavily in advance, while training programs help them build internal capabilities for effectively operating digital solutions. The disruption caused by COVID-19 highlighted the stark rise in digital adoption in fact, for many SMEs, the need to transition was a necessary catalyst to explore and invest in e-commerce platforms and integrated digital systems to support remote working. SMEs were forced to go digital-first during the pandemic, and most have kept investing in those technologies since. The trend toward digital resilience seems sustainable, as more than 60% of SMEs plan to increase their digital investments.

Implications for Small- and Medium-Sized Enterprises and for Policymakers

These findings have obvious implications for Small and Medium Enterprises (SMEs) in Bangladesh, where digital adoption has become a necessity, not an option, to survive and grow in this increasingly competitive, technology-driven marketplace. Thus,

SMEs need to focus on solving this issue by tapping affordable digital solutions, employee training programs, and partnerships with technology providers to overcome financial and skills barriers.

SMEs should maintain the momentum of digital transformation while focusing on cybersecurity and customer centricity to provide improved customer engagement and loyalty. For policymakers, the results indicate that continuing support for digital infrastructure should remain a priority, particularly in semi-urban and rural areas. Often, greater internet connectivity, subsidies for hardware and software, as well as increased cybersecurity awareness will be key policies as SMEs work to reduce the impediments to digital adoption. Policymakers should also persist in promoting public-private partnership initiatives to facilitate SMEs with resources, training, and sufficient technical expertise for successful digital transformation.

6. Conclusion

In summary, the findings of the survey highlight the strong contribution of digital technologies to the sustainability and resilience of SMEs in Bangladesh. Despite certain roadblocks, enablers and strategic responses elaborated on in the findings of this study could serve as a blueprint for SMEs in dealing with these challenges and succeeding in the digital economy. Such results can be achieved by sustained government support and initiatives, along with training programs in the government or private sector and strategic partnerships that will help SMEs extract the most out of digital transformation for the economic development of Bangladesh in the post-pandemic period.

7. Ethical Clearance

The research was conducted following ethical guidelines and received approval from the Noakhali Government College Ethics Committee before the commencement of the study. The authors adhered to the principles of integrity, honesty, and fairness throughout the research process.

8. Author Contributions

The authors confirm sole responsibility for the following: A.K.M.K.S.: Study conception and design,

Data collection, Manuscript preparation. A.K.M.K.S.; and M.E.H.: Analysis and interpretation of results, Manuscript preparation. M.E.H.: Data collection, Manuscript preparation.

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10. Conflicts of Interest

The authors declare no conflicts of interest regarding this research or manuscript submission.

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