Application of Digital Technologies by Small and Medium Enterprises in Bangladesh

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ABSTRACT: Bangladesh, a country known for its rich cultural heritage and a population marked by entrepreneurial spirit, has witnessed a notable surge in the growth of small and medium-sized businesses (SMEs). Even though digital technologies are becoming more and more important for improving business processes, there is a noticeable lack of qualitative research that focuses on the opportunities and subtle difficulties SMEs in Bangladesh face when implementing and adopting digital technologies. This study aims to provide a comprehensive examination of the current state of digital technology adoption among SMEs in Bangladesh, exploring the diverse applications, challenges faced, and opportunities created. The study applied a qualitative research method. Data has been collected from ten participants to attain the research objectives. The study finds that digital technologies were used during the pandemic, as SMEs all over the world turned to online marketing, digital banking, e-commerce, and remote work to get by. SMEs in Bangladesh demonstrated their adaptability and resilience by utilizing digital marketing, mobile payments, and online platforms. The rise in online shopping is increasing during the COVID-19 pandemic. Although there are certain obstacles to overcome, like restricted internet access and cybersecurity worries, most people agree that SMEs can benefit greatly from the application of digital transformation.

Keywords: Adaptability, Digital Technologies Bangladesh, Small and Medium Enterprises (SMEs)

1. Introduction
In the contemporary global economic landscape, the integration of digital technologies has become a pivotal factor driving innovation, efficiency, and competitiveness across industries (Smith, 2018). Small and Medium Enterprises (SMEs), often regarded as the backbone of economies, play a crucial role in shaping the socio-economic fabric of nations (Jones & Patel, 2020). In the context of Bangladesh, a nation with a burgeoning SME sector, the adoption and effective utilization of digital technologies by these enterprises emerge as a transformative force (Ahmed et al., 2021). This paper seeks to delve into the dynamic intersection of SMEs and digital technologies within the Bangladeshi business ecosystem. Bangladesh, a country known for its rich cultural heritage and a population marked by entrepreneurial spirit, has witnessed a notable surge in the growth of SMEs (Rahman, 2019). These enterprises, despite their scale, contribute significantly to employment generation, poverty
alleviation, and overall economic development. As the global business landscape undergoes rapid digitalization, the ability of SMEs to harness the potential of digital technologies becomes paramount for their sustained growth and competitiveness.

This study aims to provide a comprehensive examination of the current state of digital technology adoption among SMEs in Bangladesh, exploring the diverse applications, challenges faced, and opportunities created (Hossain & Ali, 2022). By shedding light on specific technologies that have gained prominence within this sector, this study seeks to unravel the ways in which digitalization is reshaping traditional business models and fostering innovation.

Even though digital technologies are becoming more and more important for improving business processes, there is a noticeable lack of qualitative research that focuses on the opportunities and subtle difficulties SMEs in Bangladesh face when implementing and adopting digital technologies. The literature that currently exists frequently falls short of providing a thorough understanding of the particular contextual factors that impact SMEs in Bangladesh, such as cultural considerations, regulatory frameworks, and the particular challenges related to digital literacy that may either help or hinder the successful integration of digital technologies into their day-to-day operations. In order to close this gap, a qualitative research study with ten participant perspectives could offer an in-depth understanding of the challenges, successes, and experiences faced by SMEs in Bangladesh while navigating the digital environment.

The study's objective is to provide a thorough analysis of how Bangladeshi small and medium-sized businesses (SMEs) use digital technologies. It aims to evaluate the degree of adoption at the moment, pinpoint issues that SMEs are facing, investigate potential benefits from using digital technology, comprehend contextual factors that affect adoption, look at success factors, and offer doable suggestions for enhancement. The study aims to add significant insights to the body of literature by conducting qualitative research with ten participants. It will provide a nuanced understanding of the particular opportunities and challenges that SMEs in Bangladesh face when adopting digital technologies. Additionally, this paper discusses the benefits accrued and challenges encountered by SMEs in their digital journey, offering insights into potential strategies for overcoming obstacles and maximizing the advantages presented by the digital realm.

This study aims to contribute to the discourse surrounding the symbiotic relationship between SMEs and digital technologies in Bangladesh. By understanding the current landscape and envisioning future trends, this study will to provide valuable insights for SMEs, policymakers, and other stakeholders invested in the sustainable development of the business ecosystem in Bangladesh.

2. Literature Review

In the dynamic and rapidly evolving global business landscape, the adoption of digital technologies has emerged as a critical factor in enhancing the competitiveness and sustainability of small and medium enterprises (SMEs) (Porter & Millar, 2005). This is particularly relevant in the context of Bangladesh, where SMEs play a pivotal role in driving economic growth, employment creation, and poverty alleviation (Ahmed, 2010). The effective integration of digital technologies into SME operations can unlock a multitude of benefits, including improved efficiency, expanded market reach,
enhanced customer engagement, data-driven decision-making, and reduced costs (Al-Debei & Al-Debei, 2014).

However, the widespread adoption of digital technologies among SMEs in Bangladesh is hindered by several challenges, such as limited financial resources (Al-Debei & Al-Debei, 2014), lack of digital skills and knowledge (Rahman & Hasan, 2015), cybersecurity threats (Islam & Kshetri, 2017), and infrastructure constraints (Islam, 2014). To overcome these challenges and foster a vibrant digital SME ecosystem, concerted efforts are required from both the government and private sector (Ahmed, 2010). Government initiatives, private sector partnerships, capacity building programs, and the development of affordable and accessible technology solutions can play a crucial role in facilitating the adoption of digital technologies by SMEs in Bangladesh (Khan & Islam, 2019). By embracing digital transformation, SMEs can empower themselves to thrive in the increasingly interconnected and digitalized world, contributing significantly to Bangladesh’s economic prosperity and social development (Ahmed, 2010). Imagine a small business owner in rural Bangladesh, struggling to manage inventory and customer orders amidst the complexities of traditional methods.

Financial limitations loom large, casting a shadow over the possibility of acquiring the necessary digital infrastructure and software (Al-Debei & Al-Debei, 2014). The skills gap widens, with a lack of digital literacy hindering the effective utilization of these tools (Rahman & Hasan, 2015). Cybersecurity threats lurk in the shadows, posing risks to data security and financial stability (Islam & Kshetri, 2017). And the absence of reliable and affordable internet connectivity in rural areas creates a digital divide, further exacerbating the challenges (Islam, 2014).

Yet, amidst these hurdles, there lies a reservoir of untapped potential. Digital technologies hold the key to unlocking a world of opportunities for SMEs, empowering them to transcend geographical limitations and connect with a global customer base. E-commerce platforms become virtual marketplaces, showcasing local products to a worldwide audience (Khan & Islam, 2019). Social media transforms into a powerful tool for engaging customers, building brand awareness, and fostering loyalty (Rahman & Hasan, 2015). Data analytics tools provide valuable insights into customer behavior and market trends, enabling informed decision-making and strategic planning (Al-Debei & Al-Debei, 2014).

To bridge this digital divide and empower SMEs to embrace the transformative power of technology, a concerted effort is required. Government initiatives can provide financial support, infrastructure development, and digital literacy programs, leveling the playing field for SMEs (Ahmed, 2010). Private sector partnerships can offer expertise, resources, and financing, fostering collaboration and innovation (Khan & Islam, 2019). Capacity building programs can equip SMEs with the skills and knowledge to navigate the complexities of digital technology, empowering them to make informed choices and harness the full potential of these tools (Rahman & Hasan, 2015).

The digital transformation of SMEs is not just an option; it is an imperative for Bangladesh to thrive in the increasingly interconnected and digitalized global economy. By embracing technology, SMEs can unlock a world of opportunities, driving economic growth, creating employment opportunities, and contributing to the nation’s prosperity (Ahmed, 2010). As Bangladesh embarks on this digital journey, the empowerment of SMEs lies at the heart of its success (Porter & Millar, 2005).
3. Methodology
To investigate the application of digital technologies by small and medium enterprises (SMEs) in Bangladesh, a qualitative research approach is employed, involving in-depth interviews with 10 participants (Alam et al., 2023; Thakur and Alam, 2022). The participant selection involves purposive sampling to ensure diverse representation across industries and business sizes (Alam, 2021). Semi-structured interviews conducted to gather detailed responses regarding the digital technology adoption during covid-19 in Bangladesh and world-wide, applications identified in SME businesses, and suggestions for the development of SMEs in Bangladesh. The interview questions are designed to elicit rich, descriptive data, allowing for a nuanced understanding of participants' experiences. Thematic analysis employed to identify patterns, trends, and insights from the qualitative data, providing a comprehensive exploration of the application of digital technologies in the context of SMEs in Bangladesh. Ethical considerations prioritized, ensuring participant confidentiality and voluntary participation throughout the research process.

4. Findings and Discussions
The rapid growth of online retail and the increasing profitability of online retailers compared to traditional brick-and-mortar stores highlight the significant impact of digital technologies on the business landscape (Turban et al., 2017). Online marketing has emerged as a crucial tool for SMEs to reach a wider audience and effectively target specific customer segments (Chaffey & Chadwick, 2016). Government support plays a pivotal role in enabling SMEs to embrace digital technologies, fostering economic growth and job creation (OECD, 2019). However, challenges such as limited internet access and concerns about cybersecurity pose significant obstacles to SME adoption of digital technologies (Maurer & Ballon, 2018). Despite these challenges, digital technologies offer SMEs a wealth of opportunities to expand their reach, improve efficiency, and enter new markets (Akter et al., 2016). By embracing digital transformation, SMEs in Bangladesh can thrive in the evolving digital economy (Sarker et al., 2018).

Application of Digital technologies during covid
The adoption of digital technology has been a consistent response across different countries" (Global Economic Forum, 2022, p. 1) To meet the problems presented by the pandemic, SMEs all around the world have resorted to digital banking services, e-commerce, online marketing, and remote work options" (International Labour Organization, 2022, p. 2). SMEs' use of digital technology in the global setting has been influenced by a number of variables" (World Bank, 2020, p. 3), such as:

The need to adjust to shifting customer behavior: During the pandemic, consumers switched to online shopping and digital services, which required SMEs to modify their business models. The necessity of preserving business continuity: Digital technology provide SMEs a means of carrying on with their operations and connecting with clients in the face of disruptions to their supply chains and physical operations.

The necessity of preserving business continuity: Digital technology provide SMEs a means of carrying on with their operations and connecting with clients in the face of disruptions to their supply chains and physical operations.
The requirement for financial support: To further encourage the adoption of digital technology by SMEs, governments and financial institutions provided support programs. The application of digital transformation has advanced globally due to COVID-19 in SMEs. SMEs are better positioned to compete in the increasingly digitalized global market as they get more experience with and skill with digital tools. The global COVID-19 epidemic has had a significant impact on businesses globally, with SMEs being disproportionately impacted. SMEs are an important part of the economy in Bangladesh, where they make up over 90% of all enterprises and employ over 80% of the labor force. Small and medium-sized enterprises (SMEs) were severely impacted by the pandemic's widespread disruption of supply chains, forced closures, and decreased customer demand.

Many SMEs in Bangladesh resorted to digital technology as a means of adapting and surviving in the face of these obstacles. SMEs now have additional channels for managing business, interacting with clients, and obtaining financial services thanks to digital tools. Here are a few particular instances of how Bangladeshi SMEs used digital technologies during COVID-19.

E-commerce and Online Marketplaces: To expand their consumer base and carry on selling their goods even during lockdowns, SMEs turned to e-commerce platforms and online marketplaces. By moving to internet sales, SMEs were able to continue making money and lessen the effects of closing their physical stores.

Digital Marketing and social media: To advertise their companies, interact with clients, and increase brand recognition, SMEs have embraced digital marketing and social media. During the pandemic, social media networks offered an affordable means of reaching a sizable audience and preserving business partnerships.

Remote Work and Collaboration Solutions: To allow workers to work from home, SMEs established remote work policies and made use of collaboration solutions. This made it possible for companies to stay open and productive during lockdowns.

Financial Services and Mobile Payments: To enable contactless payments and obtain financial assistance, SMEs embraced digital financial services and mobile payment solutions. This facilitated transactional simplification and improved financial management for firms.

In addition to helping them survive the epidemic, SMEs in Bangladesh that adopted digital technology during COVID-19 also set the groundwork for their future expansion. Businesses who have embraced digitization are now more prepared to function in a world that is becoming more digitally connected and networked.

The participant (Participant #1) provides a real-world example of how they have successfully used Facebook for digital marketing to reach a wider audience. It emphasizes the importance of SMEs embracing digital platforms and adapting to the changing business landscape in order to remain competitive.

*I use Facebook for digital marketing. As you know that most of our young generation use Facebook and very active during this covid. I opened Facebook page, group and promote to attract the customers.* (Participant #1)
Impact of Online Business on Traditional Businesses

The rise of online business has had a significant impact on traditional brick-and-mortar shops. A study by the National Retail Federation found that online sales in the United States grew by 16.8% in 2021, while in-store sales declined by 6.2% (National Retail Federation, 2022). A report also proved that online retailers are now more profitable than brick-and-mortar stores. (McKinsey & Company, 2022) Online retailers offer a wider range of products at lower prices, and they are open 24 hours a day, 7 days a week. This has made it increasingly difficult for traditional businesses to compete. In this context, a participant (Participant #3) expressed concern about the growing popularity of online businesses and the potential displacement of traditional brick-and-mortar shops. At the same time, Participants (Participant #3, 8) highlight the challenges faced by traditional businesses in adapting to the digital landscape.

The SME owners have to take the raw material, make the product, then come to the showroom and then people go to our showroom and buy it. Now all the women who are selling clothes online, even my son’s wife, also do it. My son’s wife used to buy things from big stores, and now she buys them from me (Participant #3)

Importance of Online Marketing for SMEs

Online marketing is essential for SMEs in today’s digital world. It allows them to reach a wider audience, target specific customer segments, and track their marketing results. One of the participants (Participant #1) shared his experience using Facebook for digital marketing and emphasized its effectiveness in reaching a wider audience, particularly during the COVID-19 pandemic. Similarly, some of the participants (Participant #7 & #9) mentioned online marketing as one of the four primary methods for customer acquisition which acknowledges the importance of online marketing and recognizes the need for SMEs to embrace digital platforms.

I use Facebook for digital marketing. As you know that most of our young generation use Facebook and are very active during this pandemic. I opened Facebook page, group, and promotion to attract the customers. (Participant #1) There are 4-5 ways to select a customer. Online marketing 2. Offline marketing 3. E-mail marketing 4. E-marketing. I am usually using the online marketing. Day by day popularity of online marketing is increasing. (Participant #7) We have to use some software; we have Excel for all these and the products like recycling. (Participant #9)

Customer acquisition

Another participant (Participant #7) said that online marketing is one of the four primary methods for customer acquisition. It is considered as one of the most effective ways for SMEs to reach new customers. He notes that there are a variety of online marketing channels that SMEs can use, such as social media, email marketing, and search engine optimization.

There are 4-5 ways to select a customer. Such as, Online marketing 2. Offline marketing 3. E-mail marketing 4. E-marketing. I am usually used to these. Day by day popularity of online marketing is increasing. (Participant #7)
Challenges Faced by SMEs in Adopting Digital Technologies

Overcoming challenges in the adoption of digital technologies by SMEs is imperative, given that only 25% of SMEs in developing countries have internet access. In Bangladesh, SMEs often face challenges in adopting digital technologies due to lack of financial resources, technical expertise, and awareness of the benefits expressed by some Participants (Participant #6, #9)

There are police; there are market committees; there are more people. There is Patineta (local gang with political power) here; we have to manage all. We have to pay them an amount here because we do business. Otherwise, we will not be able to do business. (Participant #6)

The participant (Participant #8) shares similar concerns about the impact of online business on traditional brick-and-mortar shops because online retailers are primarily trading with foreign manufacturing companies. They also point out that many online retailers are not actually manufacturing their own products, but are instead working with manufacturing companies to produce their goods for them.

No, it can be seen that those who do business online, who are trading or we work as an outsider with the manufacturing company (Participant #8)

Opportunities for SMEs in the Digital Age

Embracing the digital age presents significant opportunities for SMEs, enabling them to enter new markets and enhance productivity and efficiency, as emphasized by the United Nations Conference on Trade and Development (2022) and the World Bank (2022), respectively. Because the digital application offers a wealth of opportunities for SMEs to grow and expand their businesses. In this context, some participants (Participant #9 and Participant #10) emphasize the opportunities for SMEs to expand their reach, improve efficiency, and enter new markets through digital transformation.

We are bringing such hand fans (local fan) to see the tradition and splendor. We can turn on foreign remittances by exporting to our friend or neighboring countries by the help of the government; we give hand fans in all those places. We can turn on foreign remittances by exporting to our friend or neighboring countries if the government provides more support in terms of export; we distribute hand fans in all those places. We are writing its history with another tag along with the price tag. (Participant #9)

We can preserve the heritage of this country and pass our legacy to foreigners. Again, I will also get financial benefits from here. (Participant #10)

Displacement of traditional brick-and-mortar shops

Participants concern about the potential displacement of traditional brick-and-mortar shops due to the growth of online businesses. The participant (Participant #3) believes that the ascent of online business presents a notable challenge to conventional brick-and-mortar establishments. Online retailers offer a wider range of products at lower prices, and they are open 24 hours a day, 7 days a week. This makes it difficult for traditional shops to compete and could lead to many of them closing down.
The producers have to take the raw material, make the product, then come to the showroom and then people go to our showroom and buy it. Now all the women who are selling clothes online, even my son’s wife, also does it. My son’s wife used to buy things from big stores, and now she sells them to me. (Participant #3)

Preserving cultural heritage and promoting traditional handicrafts.

There is so much importance of government support in marketing traditional handicrafts to foreign markets. The participant (participant #9) sees digital technologies as a way for SMEs to expand their reach beyond their local markets and access new customers around the world. He (participant #9) believes that online marketing and international trade fairs can help SMEs to increase their exports and generate foreign remittances. Additionally, the participant (Participant #9) recognizes the potential of digital platforms to promote traditional handicrafts and preserve cultural heritage. They also acknowledge that government support can play a valuable role in helping SMEs to market their products to foreign buyers.

We are trying to have our things together, such as our lost old fashion, which we often omit because of modernism. Such as a hand fan. (Participant #9) In addition to allowing us to market outside the country, since our products are associated with tradition and history. It gives the poor people opportunities to earn extra income. They allow us to do international marketing to bring these issues to our attention. They collect these souvenirs when any tourist goes from one country to another. We made the tiles with the destroyed thing. We are now using it as wall tiles, sustaining it as floor tiles, and working on R&D. Moreover, it will enhance foreign remittances. It is a good source for the future of Bangladesh. So, the advantage we want from the government or the SME Foundation at the moment is that they should assist us in promoting to other countries through exhibition (Participant #9)

5. Conclusion

The study emphasizes how digital technologies have revolutionized small and medium-sized businesses (SMEs) in Bangladesh. The rise in online shopping, particularly during the COVID-19 pandemic, highlights how important e-commerce and digital marketing are to SMEs’ ability to compete. Government support is identified as a critical component, along with suggestions for funding, education, and technology access. Although there are certain obstacles to overcome, like restricted internet access and cybersecurity worries, most people agree that SMEs can benefit greatly from the many opportunities that digital transformation offers, like expanding their reach internationally and increasing productivity.

It is clear that digital technologies were used during the pandemic, as SMEs all over the world turned to online marketing, digital banking, e-commerce, and remote work to get by. SMEs in Bangladesh demonstrated their adaptability and resilience by utilizing digital marketing, mobile payments, and online platforms. In this situation, the significance of government assistance is underlined, both for overcoming current obstacles and setting the stage for future growth.
A common topic is how traditional brick and mortar stores are being affected by internet commerce, with worries about possible displacement. SMEs encounter several obstacles when implementing digital technologies, such as limited funding, political risks, and heightened awareness requirements. Nonetheless, the advantages of the digital era—such as increased efficiency and a worldwide reach—are viewed as noteworthy.

SMEs emphasize how important it is for the government to help promote traditional handicrafts to international markets, with digital platforms being a key component of this effort. It is important to use digital platforms to promote traditional crafts and preserve cultural heritage.

The results also highlight certain areas that require attention for the development of SMEs, such as the need for more training, funding from organizations such as the SME Foundation, and the establishment of niche markets. The significance of government assistance in enabling involvement in global trade exhibitions, increasing public knowledge of homegrown goods, and offering loans and financial support is emphasized.

The study on the use of digital technologies by small and medium-sized enterprises (SMEs) in Bangladesh, which involved 10 participants and qualitative research, could have several limitations that could affect its findings. First off, the results might not be entirely generalizable due to the small sample size of 10 participants, which may not fully reflect the diversity of SME experiences across the nation. Subjectivity may also be introduced by the qualitative style of the study, and participants' answers may be skewed by social desirability or recall bias. The accuracy of the study may be hampered by its reliance on self-reported data. Moreover, exogenous variables, like modifications in the regulatory landscape or economic circumstances throughout the research duration, may influence the significance of the results. Lastly, the study only offers a moment in time view of SMEs' experiences due to the dynamic nature of technology adoption, which makes it more difficult to identify long-term patterns. It is imperative to acknowledge these limitations in order to accurately interpret the study's findings.

Subsequent investigations regarding the utilization of digital technologies by small and medium-sized businesses in Bangladesh may pursue various avenues. The changing nature of technology adoption would be captured by longitudinal studies, and industry-specific insights could be obtained through comparative analyses across industries and geographical areas. An overview of digital technology trends that is more statistically sound would result from combining quantitative evaluations with qualitative information. Information gained from concentrating on particular technologies, examining the implications of policy, and examining the efficacy of capacity-building initiatives would be beneficial. Furthermore, studies on cooperative projects involving SMEs, bigger companies, and technology suppliers may reveal commonalities and cooperative tactics. By addressing these topics, we can improve our knowledge and provide guidance for real-world applications that will help SMEs in Bangladesh successfully adopt digital technologies.

**Declarations**

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