Analysis Digital Transformation in SMEs: Insights into Adoption Process, Employees Digital Proficiency and Concerns from Managerial Perspective

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Abstract

Batam City has recognized the benefits of digital transformation and has actively adopted digital technology. However, it is a misconception to view digital transformation as merely the adoption of new technologies. To digitally transform a business, SMEs need to acquire managerial capabilities and digital proficiency of employee. The need to ensure that managers and employees are equipped with the digital knowledge is essential. Delays in addressing these issues could result in a broader digital gap, putting Batam's SMEs at a disadvantage in both local and global markets. The study employs a qualitative approach through in-depth interviews with SME owners or managers. The findings show that while digital transformation improves operational efficiency, market reach, innovation, and reducing fraud, SMEs face challenges such as limited capabilities, skills gaps, and emerging market demands. The study shows that managerial skills and employee readiness are key in ensuring a successful digital transformation. This research provides a practical overview for entrepreneurs or managers to help them navigate digitalization in a dynamic environment.

Keywords: *Digital Transformation, SMEs, Managerial Capabilities, Employee Digital Proficiency*

1. INTRODUCTION

The world has reached a point where digital transformation is occurring at a considerable depth and speed of transition [1]. The digital transformation we are witnessing is the result of the increasing convergence of social, mobile, and smart technologies [2]. Digital transformation is a strategic approach to altering pervasive mindsets held by individuals and organizations [3]. Moreover digital transformation has capable of restructuring, redefining business models, and fundamentally influencing the manner in which we live, work, and interact [4]. The advent of digital technologies has led to the dissolution of traditional barriers between individuals, businesses, and other entities, thereby enable them to adapt and thrive in the digital age [5].

Indonesia, a nation comprising 17.504 of islands connected by oceans [6], has realized the immense potential advantages of digital transformation in addressing the specific challenges presented by its geographical circumstances [7]. For Indonesia itself, the local government of Batam City has taken a proactive approach in the development of infrastructure and the implementation of environment conducive to digital transformation [8]. According to the Online Data System (ODS) of the Ministry of Cooperatives and SME, the number of small and medium-sized enterprises (SMEs) in Batam is reaching 81.486 [9]. While digital transformation affects both large and small companies, small and medium-sized enterprises (SMEs) are of particular interest due to their important role in the

economy [10]. Batam City was anticipated to become one of the promising areas not only for large-scale corporations but also for small and medium-sized enterprises (SMEs) [11].

Given the large numbers of SMEs in Batam City, efforts are required to support and improve the performance of SMEs in a targeted manner [12]. However, it is a misconception to view digital transformation as merely the adoption of new technologies. To effectively transform a business digitally, SMEs need to acquire managerial capabilities and development of employee capabilities is needed [13]. The need to ensure that managers and employees are equipped with the knowledge and tools to succeed is urgent, given the fast pace of digitalization [14]. Delays in addressing these issues could result in a broader digital gap, putting Batam's SMEs at a disadvantage in both local and global markets.

In fact, management skills can often be the determining factor between the success and failure of a SMEs [15]. The role of managers and employees thus plays a crucial role in the adoption of digital technologies [16]. Although there was already research on the digital transformation of SMEs in Batam by [17], the previous research may not sufficiently focus on the managerial perspective, which is key for successful implementation. This gap indicates the need for research to provide practical strategies for managers to lead effective digital transformations in their organizations.

Therefore, this research aims to analyze digital transformation processes within SMEs in Batam from a managerial perspective. Specifically, the study seeks to explore the adoption processes, employee digital proficiency, benefits and challenges faced during this transition. By providing a comprehensive analysis of the adoption process, employee digital proficiency, benefits, and challenges, this research will serve as a practical overview for entrepreneurs or managers to help them navigate the digitalization in a dynamic environment. With this in mind, we propose our research question as follows: How do Batam SMEs approach digital transformation from a managerial perspective?

2. RESEARCH METHODOLOGY

For this research, a qualitative method was employed. The aim is to gain understanding of digital transformation from managerial perspective by exploring the adoption process, employee digital proficiency, benefits, and challenges during the transition. Qualitative research is well suited for exploring "how" questions, which seek to uncover the mechanism of a phenomenon [18]. The interview method was chosen as the approach for this study because it can provide in-depth insights and allows flexibility for open-ended questions [19]. The interview method combines both exploratory and confirmatory aspects of qualitative inquiry, which is considered to be more extremely through in appropriate circumstances [20]. Interviews were either video recorded with the permission of the research participants or else accompanied by extensive note-taking. The list of interview questions can be found in Table 1.

Table 1. Interview Questions

No.	Interview Questions
1	What is the reason that made you decide to adopt digital technology?
2	What resources were consulted for more information?
3	What factors do you consider when adopt digital technology?
4	In your opinion, is it important for employees to have digital proficiency?
5	Does it benefit a business to have employees who know how to use digital technology?
6	Will it be a requirement when hiring employees?
7	What concerns or difficulties when adopting digital technology?
8	What positive change do this technology bring to the business?

The collected data from interviews will then be analyzed using qualitative content analysis. Qualitative content analysis involves the process of analyzing and organizing the content of a communication into categories that describe the topics, themes, and context of that message [21]. During the analysis, (i) the collected data were transcribed to gain an overall understanding of the content related to the purpose of the study; (ii) the interview transcripts were read repeatedly to gain a sense of the whole; (iii) the interview text was identified and classified into several key points; (iv) the gathered key points will be used as the resulting information; and (v) the resulting information will be used to draw overall conclusions.

The study aims to recruit approximately 16 participants. This is because research has shown that conducting more than 16 interviews does not necessarily yield new information based on empirical research showing that the majority of new information is typically identified within the first few interviews [22]. Therefore, only 16 interviews are conducted. The selected criteria for the sample were: All potential interviewees had to (1) be an SME, (2) implement digital technology in their business, (3) responsible for business management, and (4) located based in Batam. Potential participants were identified through personal networks and then were approached to participate in the study. Participants' names were replaced by numbers. The list of interviewees can be found in Table 2.

Table 2. Interviewees Overview

Interviewee No.	Position	Types of Company	Sectors
1	Owner	SMEs	Food and Beverage (F&B)
2	Manager	SMEs	Food and Beverage (F&B)
3	Owner	SMEs	Food and Beverage (F&B)
4	Owner	SMEs	Fashion
5	Owner	SMEs	Fashion
6	Owner Assistant	SMEs	Fashion
7	Owner	SMEs	Fashion
8	Owner	SMEs	Fashion
9	Owner	SMEs	Food and Beverage (F&B)
10	Manager	SMEs	Food and Beverage (F&B)
11	Owner	SMEs	Food and Beverage (F&B)
12	Owner	SMEs	Food and Beverage (F&B)
13	Manager	SMEs	Food and Beverage (F&B)
14	Manager	SMEs	Retail
15	Owner	SMEs	Retail
16	Owner Assistant	SMEs	Food and Beverage (F&B)

3. RESULT AND DISCUSSION
3.1. Digital Transformation Adoption Process

We have obtained several different opinions from the interviews that have been conducted about the reasons they decide to adopt digital technology. One manager commented:

"When we first opened our business, the location was still new and was not a tourist spot at first. The location was still unknown to the others and the visitors are still a little. It was because of those factors that we decided to try to adopt digital technology to survive" (Interviewee 2).

This opinion was backed up by another interviewee:

"The initial adoption was due to following the trend. Nowadays, where all activities cannot be separated from digital technology, we feel we must follow the trend to survive" (Interviewee 3).

Some interviewees argued that survival was one of the main reasons for adopting digital technology, while others mentioned that their decision to adopt digital technology was also driven by their target market.

"When I started my business in 2016, most people were no longer shopping in stores but through their phones, especially young adults" (Interviewee 4).

"At the beginning of our business, we targeted 18-year-olds and above who liked shopping. The period where they have started to learn grooming. And among children aged 18 and above, most of them have all implemented online shopping, so for that reason I decided to use digital technology" (Interviewee 5).

The adoption decision process was made by the owner itself or the manager in consultation with the owner. The decision they made led them to further research on which digital technology they should adopt. Some interviewees commented:

"In our case, we had to think about two things: the cashier and marketing. For the cashier part, I decided to ask some of my business friends. And eventually we use the In-Soft [system]. For marketing, the data given to us was based on one of our employees' observations of how these platforms worked and their opinion on which were suitable for us" (Interviewee 2).

"I was more focused on how my business could be known by others so … social media was the first thing that came to mind. I had used social media myself and knew some general things. For more in-depth information, I do my own research on Google and Tiktok. I read reviews about some of these platforms and provided tools that can be used for my business" (Interviewee 3).

Some interviewees found information through their own online research or by consulting people around them. Other interviewees went straight to the tools that were most popular and used by others.

"In my case, I just follow the digital tool that is most popular and used by others" (Interviewee 6).

"The platform needs to be used by a lot of users so that my business can gain more audiences" (Interviewee 12).

However, they did recognize the challenge that might approach:

> "As we follow customer adaptation, trends, and requirements may evolve. Maintaining and upgrading to keep up with them can be a challenge" (Interviewee 6).

There are several factors to consider when adopting digital technology. According to some SMEs, aligning with business objectives is a factor that must be considered in their adoption process of digital technology:

> "The technology function must align with the business goals, ensuring that my technology investment has a clear purpose for the business. It can also help set long-term goals that make the investment worthwhile." (Interviewee 1).

Some SMEs also argue that a digital technology should be able to improve the efficiency of their business:

> "I am so glad that we decided to implement digital technology in the cashier area. Our order taking system has improved in terms of saving time and energy. Each waiter has a pad [system] to take orders. The order is automatically received by the cashier through a machine and was then passed on to the bartenders. In this aspect, we have reduced the waiting time of our customers" (Interviewee 2).

> "It was really helpful having the order listed out with the buyer's data. The tool has a setting where the buyer enters their name, address, and phone number for the order, so it's a huge relief for me. I don't have to ask each person individually" (Interviewee 6).

> "Since we have stock in the warehouse and we are not only engaged as a retailer but also as a distributor, the quantity amount we sell varies a lot. So, using the *GF Akuntansi* [system] to sort the data helps us a lot" (Interviewee 14).

SMEs adopting digital technology are mainly responding to survival challenges, adapting to market trends, and meeting the preferences of their target audience. The adoption process involves conducting research, seeking peer recommendations, or simply following the latest popular digital tools. Managerial perspectives are shaping every step of the adoption process, from defining the need for digital tools to evaluate and implement them in a way that meets their business goals. In this context, SMEs with limited information and financial resources may find it difficult to explore or invest in more advanced technology. Additionally, it is also undeniable that SMEs themselves may lack sufficient knowledge in this area. SMEs that simply followed the latest popular tools might had to keep up with evolving customer preferences and market trends.

3.2. The Role of Employee Proficiency in Digital Technology Skills during Digital Transformation

Employees who are proficient in digital technology play a significant role in the digital transformation process. Creativity and time productivity are enhanced by employees who are proficient in digital technology. Hence, some requirements

require them to be familiar with digital technology. In response to this issue, one interviewee shares her view on creativity:

"They will share with me things like what designs are trending and give their opinion on how to further improve that design" (Interviewee 11).

"I demand my staff position as a waiter that they also be able to create video so they have to know what is trending. Usually, they will share their idea or opinion on what content we should create for the business to reach out. And since we are now in the era of Gen Z, we don't know what Gen Z and Gen Alpha think, so we need ideas and feedback from them" (Interviewee 13).

Other participants further elaborate on the previous idea by explaining how time productivity is enhanced by employees who can use digital technology:

"They learn quickly, so I don't have to spend a lot of time teaching them ... and they adapt quickly to the environment." (Interviewee 9).

"My employee is pretty good with tech, so I just need to help them learn more of the specifics. I have to say having workers who are digitally skilled usually makes the whole process go a lot smoother." (Interviewee 14).

"I don't have to spend a lot of time teaching them. They already knew the basics" (Interviewee 15).

However, they elaborate on whether it is a need and requirement:

"It really depends on the job they are applying for. Just imagine having a dog keeper who was up to date with social trends but didn't know how to take care of a dog properly ... it would be a mess. But I think nowadays, people who are good with digital stuff will have way more job opportunities and advantages" (Interviewee 9).

"I think it depends on the department. If I wanted to hire a cleaning service, it wouldn't matter. All I needed was someone who could clean. But on the other hand, if it was a job that required handling marketing or producing a video, that would be a consideration" (Interviewee 14).

"Depends on the job ... For me, I need someone who is good with digital technology so they can provide idea, but it might be different for other business sectors" (Interviewee 15).

It is clear that some participants agreed that employees who are proficient in digital technology enhance creativity and time productivity but there is no clear measurement to evaluate the stated improvements in creativity and time productivity. The relevance of digital skills depends on the job role. For roles that require more digital skills (e.g., marketing, videography, photography, social media management, etc.), proficiency in digital technology is essential. For non-digital roles (e.g., chef, cleaning service, etc.), digital proficiency is less crucial, which highlights the importance of job-specific skills. While the benefits of employee digital proficiency are highlighted, it remains unaddressed how potential challenges such as technology reliance, digital burnout, and generational skill gaps may impact employee performance.

3.3. Benefits and Concerns Arising Due to Digital Implementation during Digital Transformation

The implementation of digital technology as part of the digital transformation process can yield numerous benefits or positive changes. Some interviewees commented:

"Digital platform has been an effective tool for raising awareness of my business. Many people have discovered my business through these platform" (Interviewee 4).

"The broad access of digital platform allowed my business to reach people beyond Batam City without needing a physical store" (Interviewee 7).

"It gives me information and ideas on current trends in design and enables me to come up with new ideas for my product design" (Interviewee 8).

"Because I myself rarely visit the store, so it's [system] very helpful to avoid fraud in warehouse stock" (Interviewee 14).

SMEs pointed out how digital tools help their business growth, expand their markets, innovate in product development, and reducing fraud. However, some SMEs concerns were also pointed out during the implementation process.

"There are already many competitors on the platform we are using to grow our business. That's definitely one of our concerns" (Interviewee 7).

"The one who is in charge of the Moka [system] was quite old … After discussing with my boss, we decided to hire a tech-savvy generation to take care of it as the person who is in charge was having a hard time. This was not part of our original plan" (Interviewee 10).

"Even with digital tools that are considered easy to use, the learning process can still be challenging for less tech-savvy workers" (Interviewee 16).

Digital tools are seen as valuable for driving business growth, expanding markets, providing innovation in product development, and reducing fraud. SMEs see potential advantages in adopting these technologies. However, it has also raised concerns. The presence of numerous competitors on widely used digital platforms is a significant issue for SMEs, as mentioned by interviewee 7. This highlights the challenge of competing and maintaining differentiation in a crowded digital environment. SMEs have also identified the need to hire more tech-savvy employees, as mentioned by interviewee 10, which was not part of their original plans. This highlights the potential for unanticipated adjustments during implementation. Lastly, employees who are less familiar with digital technology posed a learning challenge, even when using user-friendly digital tools.

4. CONCLUSIONS

This study explores the digital transformation journey of SMEs in Batam City from a managerial perspective. The research emphasizes the significant managerial capabilities involved in the adoption of digital technology. SMEs owners and managers are the realization that there must be adoption of digital

technology during digital transformation in relation to operational work and there are many different technology options. However, SMEs owners and managers need to fully understand the potential challenges and concerns they may face, including both external and internal factors.

Digital transformation offers SMEs in Batam several advantages, such as improvement in operational efficiency, increased market reach, and innovation in product development. For instance, digital platforms were helpful in raising awareness, reaching audiences beyond Batam City, enabled SMEs to develop more creative designs and reducing fraud. However, the success of digital transformation transition is determined by the preparedness of managerial and employee skill sets. The presence of skills gaps and the unexpected demands of workforce adjustments emphasize the need for targeted strategies to ensure a smoother implementation process. Challenges were also noted, such as maintaining differentiation in a crowded digital environment, difficulties faced by less tech-savvy employees, and the need to hire more younger tech-savvy individuals.

The study fills a significant gap in the existing literature by focusing on the managerial perspectives that emerge in the context of SME digital transformation. The study contributes by extending the understanding of how managerial capabilities influence digital technology adoption and implementation during digital transition and explores the relationship between employee digital proficiency in achieving digital transformation goals.

The research was based on a qualitative approach, specifically in the form of interviews, which can be biased due to interviewees personal perspectives or experiences. While data were obtained from Batam SMEs only, it may not reflect the challenges and opportunities faced by SMEs in another region. The research primarily explores from a managerial perspective, which may overlook the perspectives of employees, who also play crucial roles in the adoption process. The focus on managerial capabilities opens room for further research to explore specific management training programs, which the training and development programs should focus on enhancing digital literacy and change management skills.

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