



Digital Transformation for SME Banks

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Abstract. Digital economy has brought about new technological competencies that have made it possible for banks to embark on digitalization of processes and digital transformation implementation across their product offerings. From digitization to digitalization and then digital transformation, technological advancement is slowly making traditional boundaries disappear. In such unprecedented volatility and market regulatory turmoil banks are rethinking banking and have begun introducing banking platforms that will be based on hyperconnectivity; supercomputing; cloud computing; robotics; embedded sensors and cyber security. Digitization has been an ongoing process, where moving everything analog to digital has always been seen as the main objective and much of that has been completed. Nevertheless, the process aspect of digitization and digital transformation is still very much work in progress. This research examines how process transformation can shape the future of Small and medium (SME) banking and provide an overarching framework for digital transformation in SME banking. Six groups of stakeholders provided insightful feedback which led to the proposed building blocks necessary for this idea to succeed. The paper highlights the following technological structure to be established; 1) digital scoreboard, 2) digital onboarding, 3) digital marketplace, 4) digital roadmap, 5) digital ombudsman, and 6) digital entrepreneurship as pillars for SME banking framework. This paper also suggests issues and challenges that need to be overcome with specific case examples to ensure the success of the six core areas mentioned.

Keywords: Digital Ombudsman · Digital Onboarding · Digital Scoreboard · Digital Marketplace · Digital Roadmap · Digital Entrepreneurship

1 Introduction

According to a recent report by McKinsey, the Global Institute predicted that finance is a major area that will undergo digital transformation and has predicted that it will grow by 6% which will account for about US\$ 3.7 trillion by 2025. The United Nations Trade and Development information also highlights that more than 37% of foreign direct investments will be made through this technology. Digital banking is a part of a larger context of financial digital transformation that contributes to this growth. Banking

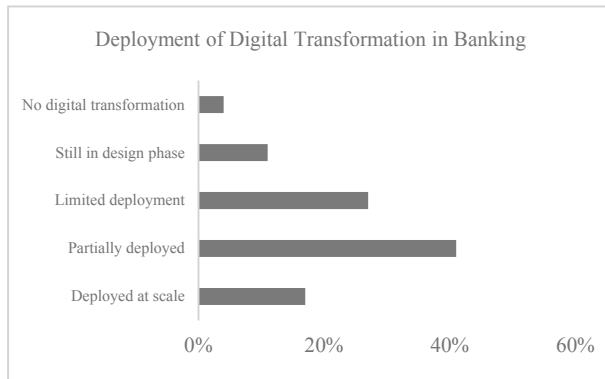


Fig. 1. Digital transformation trends.

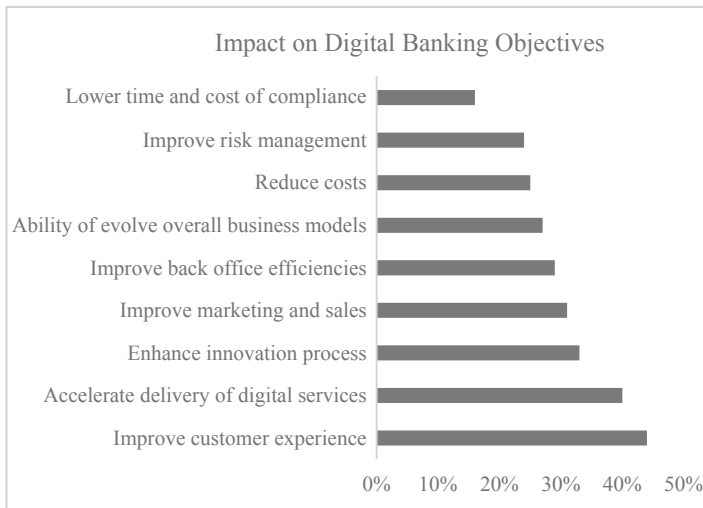


Fig. 2. Impact on Banking Objectives.

services have been impacted the most with digital technologies. Online banking, ATM services, mobile banking, cross institutional services, and electronic wallets are among others that have undergone digitization. However, digital transformation does not seem to be keeping pace based on the 2021 digital banking report. According to the report, only 17% of organizations surveyed indicated that digital transformation was deployed at scale. Figure 1 highlights the percentage of deployment of digital transformation in banking. The data shows partially deployed at 41%, design phase was 11%, limited deployment at 27% and absence of digital transformation at 4%.

Digital transformation's impact on banking objectives seems to have the highest impact on customer experience which was 44% as shown in Fig. 2. This paper highlights technological structures that are crucial for digital transformation in SME (small and medium enterprises) banks.

Table 1. SME Banking Malaysia

Category	Micro	Small	Medium
Manufacturing	Sales turnover of less than RM300,000 OR full-time employees less than 5	Sales turnover from RM300,000 to less than RM15 million OR full-time employees from 5 to less than 75	Sales turnover from RM15 million to not exceeding RM50 million OR full-time employees from 75 to not exceeding 200
Services & Other Sectors		Sales turnover from RM300,000 to less than RM3 million OR full-time employees from 5 to less than 30	Sales turnover from RM3 million to not exceeding RM20 million OR full-time employees from 30 to not exceeding 75

2 SME Banking

Through a notification issued by the central bank of Malaysia (Bank Negara Malaysia) on 27th December, 2017 two categories have been identified for SME banking; 1) manufacturing (sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers) and 2) services and other sectors (sales turnover not exceeding RM20 million or full-time employees not exceeding 75 workers). Table 1 shows the summary for micro, small and medium definition (source: www.smebank.com.my). According to the inland revenue board (Lembaga Hasil Dalam Negeri), SME is defined as a company resident in Malaysia which has a paid-up capital of RM 2.5 million or less and is not related to any company with paid up capital of more than RM2.5 million.

In 2018 IFC (International Finance Corporation) under the World Bank group conducted a survey to better understand the challenges and trends of SME banking operations in their respective countries. About 110 SME Banking practitioners around the world participated in the survey. The survey indicated that SME banks faced numerous challenges the main one was credit risk, followed by external factors to sustainably serve small businesses and technology adoption. Other factors such as client engagement and competition were also highlighted. Over 50% of the respondents said that they will invest in technology systems for SME capacity building. IFC reported the main challenge of SME banking worldwide was credit risk (52%), macroeconomic environment and government policy changes (35%), technology adoption (20%), client engagement (18%) and lastly competition (17%) (See Fig. 3).

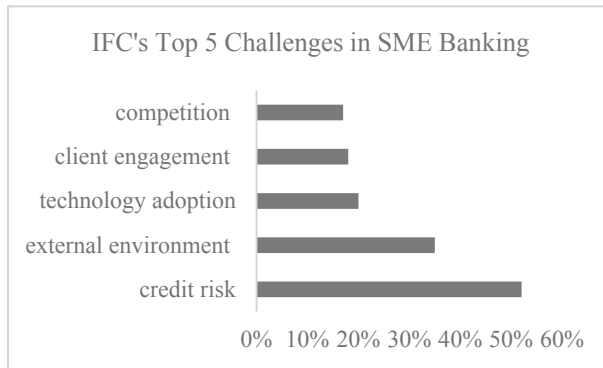


Fig. 3. Top 5 Challenges in SME Banking Worldwide

3 Literature Review

Digital banking must represent an end-to-end digital platform that can be used to offer much more than front-end services such as ATM, point-of-sale (POS) machines and bank cards. Its middle-ware platform can be used to integrate operating systems and databases. This also includes risk management and product development. SMEs are very critical for the Malaysian economy and this sector contributes more than a third to the Malaysian GDP (Gross Domestic Product) and provides over four million jobs [5, 6]. Source of capital and loans has been mainly secured by SMEs through the banking system. More than 90% of loans are sourced in this manner. Several initiatives have been introduced through the SME financing ecosystem that includes 1) Development and financial infrastructure, 2) Financing and Guarantee Scheme, 3) Information and redress, 4) Debt Resolution and management and 5) Outreach and awareness programs. The detail activities in the ecosystem are shown in Fig. 4.

SMEs constitute 98.5% of business communities in Malaysia. According to SME survey, real GDP growth had consistently outperformed the overall economy with the average annual growth rate at 6.6% compared to 5.2% overall growth of GDP between 2011–2017 [1, 3]. SMEs' productivity had also improved by 3.7% in 2017 with a value of RM 63,167 compared to RM60,887 in 2016 [1, 3]. Digital transformation is highly beneficial to SMEs. IR 4.0 provides a possibility of exponential increase in productivity for these SMEs [1].

Digitalization of product lifecycle can lead to faster product development and product innovation. Engagement between SMEs and financiers can be improved greatly with a digital platform that will eventually support the financing ecosystem discussed earlier [2]. Besides that, it allows SMEs to increase competitiveness. Nine key technologies for digital transformation for SME banking include softbots, artificial intelligence, hyperconnectivity, big data and analytics, machine learning, Internet of Things (IOT), horizontal and vertical system integration, cloud computing, and cybersecurity. In another study on readiness of Malaysian SMEs, it highlighted that they were not yet for IR 4.0.



Fig. 4. SME Financing Ecosystem.

The data revealed less than 50% of automation was being used by manufacturing firms [3]. This results in more opportunities for Malaysian SMEs to embrace the technology. Malaysia’s digital economy has now further accelerated due to the Covid-19 pandemic. Cashless payment among others has increased by double digits according to IDC [4].

The report highlighted an increase in QR-code based payments that were popularized by three major e-wallet players. With forty-seven new licensed e-wallet operators in Malaysia, we see an uptrend in digital payment options. The collaborative nature of discounts and rewards with cash back features encouraged more demand for e-wallets. SMEs have become increasingly aware of the digital payment space due to the growth seen in retails embraced by digital transformation. According to IDC Bank Negara Malaysia (BNM) also aims to achieve 200 e-payment transactions per capita by the end of 2020 [4].

4 Methodology

Using the 2018 IFC study as our baseline on the future of SME banking, this study was aimed at understanding digitalization of SME bank operations. A hundred heads of SME banking representing six core divisions (see Fig. 5) responded to the survey. They were asked to describe what factors will have the greatest influence on small businesses that they served. Judgments from experts based on the themes are listed (see Table 2).

The stakeholders investigated in this study are described in Fig. 5. The roles and responsibilities of stakeholders are illustrated (see Table 2).

4.1 Customer

The customers are really the core of digital transformation in any business let alone banking.



Fig. 5. SME Banking core divisions.

Table 2. Trends that will shape future of SME banking

Theme	Responses (%)
Fintech and digital innovation processes	30%
Digitization of channels	28%
Product innovation	25%
Data analytics	15%
External factors	11%
SME capacity building	9%
Formalization of SMEs	6%
More efficient decision-making	5%
Customer-centricity	3%
Business model development	2%

The core activities that involve loan applications for a SME client are understanding loan terms, credit terms, collateral and getting the applications to be submitted for review and finally expectation for a reasonable term of credit. Digital transformation in areas of digital onboarding, digital scoreboard and ombudsman are critical to the customer.

4.2 Technical Committee

The technical committee is made up of digital thinkers and process automation experts. Their core expertise is in areas like ideation, design, prototyping and implementation of technologies to enable and aid the needs for customers thus creating value in the process. Digital transformation in areas of reducing downtime, seamless integration and digital roadmap would be their core focus.

4.3 Risk Committee

The risk committee is made up of analysts that look at elements of risk. Their core expertise is in areas like risk attributes, definition of risk, standards review (ISO 31000 and ISO 27000), mitigation strategies, exposure, and cost benefit analysis. Digital transformation in areas of reducing downtime, seamless integration and digital roadmap would be their core focus.

4.4 Audit Committee

The audit committee is made up of an audit taskforce that review polices and implementation of standards. Their core expertise is in areas like preventive, corrective, and detective controls. Also, to look at what extent does the application of the FCPA (Foreign Corrupt Practices Act) be useful in maintaining standards of practice.

4.5 Service Users

Service users are made up of interbank transactions that require SWIFT, telegraphic transfer, MEPS and other protocols for fund transfer. Digital transformation in areas of reducing downtime, seamless integration and digital roadmap would be their core focus. Service users connect directly to the SME financing ecosystem that includes 1) Development and financial infrastructure, 2) Financing and Guarantee Scheme, 3) Information and redress, 4) Debt Resolution and management and 5) Outreach and awareness programs.

4.6 Government Policy Agencies

This group deals with credit ratings, credit score and ombudsman mainly as well as adhering to AMLA (Anti Money Laundering Act). The government policy agency is made up of law experts with a sound legal background. Their core focus will be on digital ombudsman and digital market.

5 Expectations and Summary Results

The response gathered from six stakeholders were compiled and categorized into most preferred to least preferred technologies for digitalization of SME banking. Experts were asked to rate the importance of the technical functionalities that were significant

Table 3. Digitalization Expectations

Performance Evaluation	Expectations	Aggregate (n)	%
Most preferred	Digital Scoreboard	1011	17.4%
2nd preference	Digital Onboarding	883	15.2%
3rd preference	Digital Ombudsman	713	12.3%
4th preference	Digital Entrepreneurship	678	11.6%
5th preference	Digital Marketplace	669	11.5%
6th preference	Digital Roadmap	649	11.1%
7th preference	Seamless Integration	620	10.7%
Least preferred	Reduced downtime	597	10.2%
		5820	100%

to enable digital transformation for SME banking. Technological components were first described, and experts reviewed them accordingly. Each component is illustrated in Table 3. The table shows the overall ranking for each of the expectation to be achieved by the implementation of digital banking for SME banks. The most important outcome was assigned 8 points, followed by 2nd most important value with 7 points and so on. Total points for all stakeholders were totaled to determine an overall ranking. Aggregate score by stakeholders show the most preferred was digital scoreboard (17.4%) and the least was reduced downtime (10.2%). This shows that the main priority for digital transformation should begin with the digital scoreboard.

5.1 Digital Scoreboard

Digital scoreboard is a credit scoring system that will evidently be useful to keep track on borrowers that are eligible for a loan but not successful based on conventional methods that require collaterals or other forms of credit assessment. The typical example will be buying supplies on credit such as fertilizers and animal feed. The quantum of credit and settlement data will be used to build the credit profile of the borrowers over time. The system will update scores into conventional sources such as CCRIS (Central Credit Reference Information System) or CTOS. This integrated credit score will be maintained by the bank to process new loans quickly.

A scorecard based on risk analytics for credit risk, market risk, and operational risks will be executed. These types of risks will be quantifiable via analytical models and data-driven methods. An ISO 31000 based standard powered by AI to gauge the credit worthiness of a borrower will also be part of the system. Two parts of the equation are assessment of affordability and willingness to pay. Data will be crawled from approved repositories linked to BNM for quick approval without infringing PDPA (Personal Data Protection Act). With no collateral required and within a 24-h approval time for most cases.

5.2 Digital Onboarding

Digital onboarding allows SMEs to participate as service providers. For instance, a cement supplier may not know which builder will be able to buy supplies from him. SME banks can now become aggregators that will allow mutual exchange of information as they will have a list of all the merchants on their directory. As such digital onboarding will allow SMEs to not only come to the bank for funding but also be looking for business networking to expand their business. The platform will allow resellers, merchants, and vendors alike who may require services, hardware, logistics from one another.

5.3 Digital Ombudsman

Digital ombudsman is an agent-based system that will act on behalf of digital transactions that have complaints or are fraudulent by nature. The main goal is to redress complaints from user and customers. The lodging of a complaint should be seamless in its set up. This will allow settlements to be made quickly and will be a new value-added feature of the SME ecosystem. This platform will cater for compliance and advisory matters related to repudiation with reference to Cyberlaws.

5.4 Digital Entrepreneurship

Nurturing training and skills development as well as how to facilitate, upskill with digital know how targeted to merchants and vendors will be its main purpose. Digital entrepreneurship allows analytical CRM (Customer Relationship Management) dashboard to generate a 360° view of a customer. Derivable insights on customer usage of marketing analytics, channel analytics, collections, and recovery analytics. Personalized customer greetings using voice identification, individualized customer content with personalized services in real time.

5.5 Digital Marketplace

This platform will create a marketplace that can be used to serve entrepreneurs that may be looking for deals and credit facilities from supplies alike. For B2B newcomers the digital platform will provide enough information for listings available. This includes market research, Malaysian made products, agriculture-based industry standards, vendor or product matching, marketplace analytics (what failed and why), advisory services, etc.

5.6 Digital Roadmap

With the digital scorecard analytics over a period, the platform will be able to aggregate enough data beyond the P&L of a company as the richness of the historical data itself can be utilized to aid further expansion of the business in terms of automated increase in credit line (without the business having to apply for it), micro lending, macro lending and even public listing if required. This feature will allow reuse of data, where chatbots will be able to draw the existing insights in real-time from different channels so that

duplication of effort can be avoided. It allows the bank to anticipate needs where almost 50% of all bots are contacted only once and never again.

The bots will enthusiastically contact the right customers with the right information, at the right time with an individualized catering of the need based on predictive analytics.

5.7 Seamless Integration

This feature will allow data integration on application processing will be done end to end online where customers will not need to visit the bank premises and AI will direct enquiries after preprocessing is done via chat facility with chat bot.

5.8 Reduced Downtime

This feature is expected to improve service quality and reduce delays and improve rating score for the bank. Users will gain improved customer service on a 24-h basis. This enables customers to receive the level of control they desire, with new levels of convenience and flexibility that make it easier for them to check payment updates and all related information 24 h a day, seven days a week, 365 days in a year. The results indicate that digital transformation technologies will impact and shape the future of banking services in the digital age according to views from experts specifically in the areas of end-to-end automation for borrowing, lending, digital entrepreneurship (business loans), customer service and autonomous banking. The outcome achieved from discussions with stakeholders were unanimous and that the following digital scoreboard, digital onboarding, digital marketplace, digital roadmap, digital ombudsman, and digital entrepreneurship as significant pillars in this framework. The responses also suggest issues and challenges that need to be overcome with specific case examples for implementing the six core areas mentioned in the banking process.

6 Conclusion

In summary IR4.0 for banking and finance can be described as a value-added service, which can enhance service delivery such as process optimization, omni channel optimization and collaborative services. This improves relations with trading partners (digital marketplace), borrowers (digital scorecard), to take full advantage of the system. Bank Negara Malaysia announced that five new digital bank licences were launched in 2021 to drive further innovation in the market to support the unbanked, underserved, and micro-SME segments.

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