

## CHAPTER ONE

# Influence of Artificial Intelligence Applications on Banks' Sustainability during COVID-19 Pandemic: A Case Study in Sampath Bank PLC

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### Abstract

*Presently, the entire world is dealing with a massive manmade health disaster of the COVID-19 pandemic which had an immediate impact on the entire world. The traditional banking system has undergone a rapid conversion due to stay-at-home legislation. As a result, every bank is currently experiencing crisis management issues, including employee and client limits due to social distance and quarantine measures. Artificial Intelligence (AI) aids bank operations in various ways to deal with these consequences. The way those financial activities are being redefined and changed by digital transformation. AI is the most recent notion in the commercial world to help businesses succeed. It is improving the long-term sustainability of banks all across the world. The primary objective of this research is to understand why new-normal banking practices need to enhance AI implementation to manage the adverse impact of future health crises like COVID-19. This study purposefully used Sampath Bank PLC to conduct single case study. A qualitative research approach was used to address the research questions and objectives, and semi-structured interviews were used to collect primary data from five employees. This study used thematic analysis approaches to analyze the primary data and triangulation for secondary data to gain deeper insights. The results finally discovered the importance of AI technologies on banks' sustainability during a crisis.*

**Keywords:** *Artificial Intelligence, COVID-19, Sustainability.*

### 1. Introduction

The COVID-19 pandemic dominates the entire world. This massive pandemic has drastically impacted the economic and social activities of the whole world since the end of 2019. The national social isolation, quarantine, and lockdown actions have impacted all sectors and had unimaginable social and economic effects, putting unprecedented and multi-dimensional

strain on stock markets, enterprises, the health sector, societies, and individuals. Millions of employees were moved to work from home, and thousands lost their jobs without notice. Mainly in developing countries, such as Sri Lanka, many people lost their city jobs and have been forced to return to their rural hometowns to escape poverty. World Bank estimated that more than 150 million people were pushed back into poverty due to this pandemic. Financial systems are the central division that was hit hard by the COVID disaster.

Any crisis will first push their finance into credit risk, increasing the probability of a liquidity crisis (Kaya, 2019). The COVID-19 pandemic, viewed as one of the most severe worldwide crises, has significantly impacted the global financial sector (Narayan, 2020). Especially at the beginning stage, banks were paralyzed and failed to function their day-to-day operations in the usual way. In addition, every bank faced crisis management challenges, such as a lack of staff due to social distancing and quarantine measures. Moreover, it has to deal with an increase in calls to its call centres, which have been understaffed and overburdened at a time when customers are in urgent need of reassurance. However, to keep the economy stable, banks must carry out smooth operations in any way they can. Digital Financial Inclusions (DFI) help various bank operations to deal with those consequences. Digital implementations benefited the banking industry in overcoming COVID-19 and assisting banks in maintaining their stability. Although banks have been using digital financial solutions for many years, they do not recognize their value as much as they know now. The global banking business has adopted technological developments like open banking, platform banking, electronic onboarding, cryptocurrencies, blockchain, artificial intelligence (AI), and big data analytics.

Artificial Intelligence (AI) is one of the advanced technologies that has recently become a ground-breaking concept that humans surpassed. Simply, AI is a programmed software that can reflect like humans and it includes the capability of thinking, planning, solving problems, processing information, comprehending complex ideas, learning quickly, and learning from experience, among many other things. AI concept has been adopted in various sectors; the banking sector has taken the first place. According to the Central Bank of Sri Lanka, the advanced technologies like Artificial Intelligence, Robot treatments, big data, 3D printing, and blockchain technology are emphasized as the fourth industrial revolution (Central bank, 2019). Most Sri Lankan banks are looking to expand their access by investing in digital creativities to maintain a competitive margin by offering a more comprehensive range of products and services. In the Sri Lankan context, the best example is Sampath bank; the pioneer introducing AI technologies to the entire banking sector in Sri Lanka. They introduced the first transactional humanoid teller banking robot (Barrimi et al., 2013) and also, Sampath bank is currently the highest technological adapting bank in Sri Lanka.

During the COVID period, AI accelerated dramatically to combat the situation (Khan et al., 2021). Before COVID, some banks were enthusiastic adopters of AI, including machine learning and other advanced data science techniques. Global banks, mainly in developed countries, adopted these newest technologies before the COVID pandemic and earned benefits through those implementations. Nevertheless, Sri Lankan banks were not well prepared for such a pandemic. The AI applications pre-COVID adopters could combat this pandemic successfully. Therefore, AI technology is a sidekick for banks' sustainability during the COVID pandemic.

Accordingly, the rest of this paper is organized as follows. Section 2 outlines the research problem with justification, and rationalizes the research questions and objectives. Section 3 states the theoretical background and summary of existing empirical studies. Section 4 highlights the methodological requirements of the study. Section 5 summarises the data analysis and discussion. Finally, section 6 provides the conclusion of the study.

Recently, human beings have experienced the fundamental importance of advanced technologies. The reason is the COVID-19 pandemic. It was a serious challenge faced by the banks besides. They were forced to find new solutions and quick fixes to overcome the challenges encountered due to the COVID pandemic. As the economic fallout spreads, banks find themselves juggling some big priorities that require concrete steps to reposition now while also recalibrating for the future. The most prominent solution was the advanced technological applications. Thus, digital transformation is redefining and changing the way of the whole banking industry. AI technology takes primary place. In Sri Lanka, most banks that adopted AI applications before the pandemic beat pandemic pressure firmly. That helped the banks' sustainability even after the pandemic period. The central research problem based on the aim of this study is to identify why new-normal banking practices in Sri Lanka need to improve Artificial Intelligence implementation to combat the future crisis. As such, the following research questions are developed to substantiate the issue presented under the problem of this study.

- What are the current applications of AI in Sampath bank practices?
- What are the distinct advantages of using AI applications in Sampath bank?
- How do AI applications assist in overcoming the COVID-19 pandemic challenge?
- Why are AI applications essential to Banks' sustainability during crises like the COVID-19 pandemic?

The study will aim to enhance the following objectives,

- To examine the existing applications of AI in Sampath bank

- To understand the benefits of using AI applications in the Sampath bank
- To examine how AI applications support overcoming the COVID-19 challenges to Sampath bank PLC
- To examine how AI applications assist in the sustainability of Sampath Bank PLC during the COVID-19 period

In addition, many researchers have done many studies regarding various technological advantages. However, they were not identified precisely how AI technologies are helpful to the banks to beat the pandemic crisis like the COVID pandemic.

## **2. Previous Literature**

Since the COVID pandemic is ongoing, the researcher needs to consider the situation of the COVID pandemic. This study will be the first study on banks' AI applications during the COVID situation. Plenty of research has been studied regarding digital transformation and its impact on banks' sustainability (Khan et al., 2021; Kaur et al., 2019; Fernandez, 2019; Onainor, 2019). According to the past literature, very few studies on AI have been conducted in relation to the banking system (Kaur et al., 2020; Goudarzi et al., 2002; Vijai, 2019). Nevertheless, few studies have examined AI's benefits, challenges, and risks in the banking industry and its usage in fraud detection and performance evaluation. Most empirical studies focus on FinTech and are published globally (Omreng & Gjendem, 2017). When considering the Sri Lankan context, very little research has been done on the new technological concept relating to the banking sector. The following section reviews the related theoretical and empirical literature on AI applications in banks during the COVID pandemic and the impact of banks' sustainability causes of COVID.

This study identified two main related theoretical approaches. These theoretical models were selected by focusing on the organizational level. When the bank or any organization needs to adopt any innovative applications or want to implement new advanced technological methods, they have to consider related theoretical features. This study discusses two main related theoretical models; Diffusion of Innovation (DOI) and Technology-organization environment (TOE). AI assists the banking industry in providing excellent customer service, and as a result, many new banks are adopting new technologies such as AI, cloud, and square chain. The banking industry utilises AI in a novel method that saves energy and cost. The entire banking world has smoothly done its operations through computers and networks, which is possible because banks use AI (Onainor, 2019). The impact of AI on India's top commercial banks was examined by Vijai (2019). Accordingly, it explored the potential and obstacles in the banking industry as they relate to AI applications. As such, all banking business segments

noticed a favourable computerized growth. Machine learning and deep learning are two types of AI that can reduce errors caused by emotional and psychological aspects.

One of AI's most significant tasks is to extract essential information from a large amount of data and make conclusions. Banks generally deal with a vast number of data and information. Thus, the features of AI technology provide tremendous service to banks. Jewandah (2018) emphasized the ways in how AI was changing the banking sector in the Indian context revealed that banks still far from the AI revolution stage, and the human touch is still crucial in Indian banking system. Further, it states that the Indian banking sector is exploring AI to improve bank operations and customer services near future. The majority of the banks use AI for automation, analysis, and decision-making, thereby creating a new business model. Khan et al (2021) emphasized that AI applications would command how banks will interact with their customers in the future. Boston Consulting Group (BCG) has studied AI technology usage in China. It results that in 2027, 23% of the job market in finance will have changed with AI. They also revealed that this new technology would reduce employment in China (He et al., 2018). One of the most prominent contemporary banking trends is shifting toward integrating big data, AI and cutting-edge technology to obtain a competitive advantage in such a difficult time (Kaur et al., 2019). There is much pressure from the government and the public for banks to take on more responsibilities to establish a more sustainable future. During the COVID-19 pandemic, the crisis forced banks to implement and improve advanced digital banking services.

After the review, it is evidenced that the literature on the nexus between AI applications on banking practices appears limited. Therefore, the researcher has identified a vacuum in this area in the Sri Lankan context. Moreover, previous studies have been done using a quantitative approach. However, the present study is conducted through a qualitative approach using the thematic analysis technique. The COVID-19 pandemic is the newest global situation and this has not previously been used for research studies in technological concepts. Thus, there is an empirical and methodological gap between previous research and the current situation. Therefore, this study attempts to fill the gap by investigating the influence of AI applications on Banks' sustainability during the COVID-19 pandemic period.

### **3. Methodology**

This study investigates the influence of AI applications on banks' sustainability during the COVID-19 pandemic. Sampath Bank PLC was used as a case study to conduct this research since case study research is particularly well suited to investigating a current phenomenon in its natural setting (Jaehrling et al., 2018). The reason to select Sampath Bank PLC was that

they are the pioneer in introducing AI applications to the entire banking system. Simultaneously, they are also the highest technological adapting bank in Sri Lanka (Maragaoda, 2019).

**Table 1: Participants Details (P1 to P3 are expert employees in the IT department in Sampath Bank PLC and interviewed through phone calls for the pseudonym codes. E4 and E5 are the same in the IT department who interviewed through E-mail.)**

Participant	Designation	Experience
P1	Executive Officer – IT Department	10 Year
P2	Analytical Officer – IT Department	6 Years
P3	Product Developer – IT Department	5 Years
E4	Product Developer (Junior) - IT Department	4 Years
E5	Network Engineer – IT Department	11 Years

This study used a qualitative research approach to collect primary and secondary data. Primary data was collected from semi-structured interviews, and secondary data was collected through triangulation. According to Onwuegbuzie et al (2009), the ideal size of the sample frame for interviews is 6 to 12 people. However, in the case study, 3 to 5 respondents were sufficient to gather data because of the same context and experiences (Heale & Twycross, 2018). According to the Department of Census and Statistics (2020), in Sri Lanka, digital literacy is 65% in the urban area compared to the rural and estate it is the highest percentage. Furthermore, when considering province-wise, the western province is at its peak by taking 44% of the computer literacy rate. Therefore, data collecting was set to take place in the western province. This study purposefully selected five experts in Information Technology (IT) department at Sampath Bank’s Head Office, which is situated in Colombo district. The interviews were conducted using telephone and E-mail techniques per participants’ requests.

The Thematic analysis technique was used to analyze the primary data. The thematic analysis involves five steps. Transcribing, data coding, developing themes, analyzing themes, and drafting a report. The researcher designed interview questions based on four sub-topics. To design the themes, the researcher referred to the six phases of the thematic analysis process (Clarke & Braun, 2013).

#### **4. Results and Discussion**

The primary objective of this research was to understand “why new-normal banking practices need to implement AI applications to combat the future crisis. Apart from that, this study

required to understand the usage and benefits of AI applications. Moreover, the need to examine the impact of AI on Sri Lankan banks' sustainability during the COVID pandemic and verify whether AI applications in Sri Lankan banking practices were sufficient or insufficient to overcome such uncertainties. Finally, it aimed to suggest why AI applications are essential to Sri Lankan banks' sustainability in future obstructions. According to the data analysis, nine themes were derived in this study (*Table* ).

**Table 2: Derived Themes**

Research Objective	Research Questions	Themes
To examine the existing applications of AI in Sampath bank	What are the current applications of AI in Sampath bank practices?	<ul style="list-style-type: none"> <li>• Pioneer and Finest User.</li> <li>• Diversity of AI applications.</li> </ul>
To understand the benefits of using AI applications in the Sampath bank.	What are the distinct advantages of using AI applications in Sampath bank?	<ul style="list-style-type: none"> <li>• Efficient and Effective</li> <li>• Customer Satisfaction and Risk Management</li> <li>• Competitive Advantage</li> </ul>
To examine how AI applications support overcoming the COVID-19 challenges to Sampath bank PLC	How do AI applications assist in overcoming the COVID-19 pandemic challenge?	<ul style="list-style-type: none"> <li>• Severe Deviations</li> <li>• Technological Aids</li> </ul>
To examine how AI applications assist in the sustainability of Sampath Bank PLC during the COVID-19 period	Why are AI applications essential to Banks' sustainability during crises like the COVID-19 pandemic?	<ul style="list-style-type: none"> <li>• Inadequate and Unsatisfactory</li> <li>• Protection and Precautions</li> </ul>

**Objective One: To examine the existing applications of AI in Sampath Bank**

Under the research topic, influence of AI applications on banks' sustainability during the Covid Pandemic, the first research objective was designed to study the various applications of AI in Sampath banking practices. According to the data analysis results, two themes were derived as Pioneer and Diversity of AI applications.

**Theme one: Pioneer and Finest User**

The analysis revealed that Sampath bank is the pioneer in adopting the AI application. Respondent believed that Sampath bank is the most refined user of AI applications in the Sri Lankan banking context. Being a pioneer, it has enhanced its reputation, and employees believe that is the major strength of the bank.

*“I can surely say that Sampath bank is the only bank using this much of technological products” (P3)*

**Theme Two: Diversity of AI applications**

The researcher wanted to be aware of the various AI applications used in Sampath bank. The participants had sufficient information about the AI applications within Sampath bank.

*“Sampath Wepay; messengers the future of digital payments, allowing customers to get on board via a Sampath Bank account, credit card or any other bank credit or debit card to do all bill payments, third-party money transfers, QR-based merchant payments.. ”(E4).*

*“..... Newest one is Banking Robot, Wepay functioning as smart wallet, Sampath Instant Loan, Our Vishwa Online Banking, Slip-less Banking, Cash Deposit Kiosk, Cardless- Cash and Cheque Deposit ATM” (P3).*

Further emphasized that AI can be used in various forms like minor software. The network machines and the software can implement AI and use it as an application.

*“This AI can be used in a smaller way also. I mean small software to our day-to-day functions. Some of them are in the middle office, like CRM activities, some are at the Front office, like robots and security systems. Some of them are in the back office. Especially we are providing customer services like Sampath Vishwa, Wepay, POS mobile banking, Loans facilities using AI applications” (P1).*

### **Banking Robot**

This is the first robot machine used in the Sri Lankan banking system, which Sampath bank has implemented “The Banking Robot is a machine that uses artificial intelligence to recognize vocal requests and carry out the appropriate transactions” (E4). It is performed by detecting the customers by the Robot machine, which then starts a conversation. The robot can function by withdrawing cash, account balance inquiries, and providing information on exchange rates, interest rates, loans, credit cards, and how to open an account (Omreng & Gjendem, 2017).

### **Digital wallet – Sampath WePay**

Digital wallets are regarded as the future of real-world payment systems, with major companies such as Google, Apple, and Paypal jumping on board and establishing their payment gateways. This application reduces the dependency on actual cash, allowing money to reach a broader range of people (Jewandah, 2018).

*“Sampath WePay is the future of digital payments, allowing clients to use their Sampath Bank account, credit card, or any other bank credit or debit card to pay bills, send money to third parties, and make QR-based merchant payments, among other things” (P1, P3, E4, E5).*



## **AI applications for lending – Sampath Instant Loan**

Sampath Instant Loan is another Sri Lankan first, offering an online real-time financing option through Sampath Bank (Barrimi et al., 2013). Through Sampath Vishwa Online Banking, users can acquire a loan in rupee terms against a current rupee fixed deposit (P2, E4). These apps can also create and manage financial plans and strategies based on research into various personalized investment options, loans, rates, and fees, among other things (Ryll et al., 2020).

## **Slip-less Banking**

Sampath Bank has achieved another first Application that uses another AI software. They have once again raised the standard for others to follow by adopting slip-less transactions. Accordingly, anyone can deposit money, and Sampath Vishwa users can perform withdrawals, receive transaction confirmation digitally via the app and email and check the history of transactions via the app (P1, P2, P3, E4).

## **Cash Deposits Kiosk**

Sampath Bank Cash Deposit Kiosk is a bulk cash acceptor that accepts payments online. Anyone who deposits funds into a Sampath Bank account can use this innovative service. It reduces the trouble of having to wait in lines at cash registers.

## **Cheque Deposit ATMs**

Easy Cheque Deposit ATMs are poised to revolutionize cheque deposits, eliminating the trouble and saving valuable time by allowing customers to deposit checks at any time of the day and receive a complete receipt immediately.

*“Even if it's after business hours, you can deposit Cheques. Cheques do not have to be deposited in sealed envelopes. Deposited cheques are scanned and processed immediately using the standard clearing procedure” (E4).*

The depositor will receive a receipt and a scanned image of each deposited cheque for their records. In addition, some other general applications namely, Sampath missed call banking, and Point of Sale (POS) mobile banking are also used by Sampath Bank PLC. All these applications are monitored and executed by AI software on the banker side.

*“Don't get confused exactly AI is not only something like big robots or bigger machines. Small little chip also can include this AI softwares. So that also included to AI application” (P2).*

**Objective Two: To understand the benefits of using AI applications in the Sampath bank context.**

This objective is designed to verify the second question of the study. AI-powered solutions are becoming an increasingly important aspect of banking business development strategies by helping to stay competitive in the market. AI enables banks to operate more efficiently and effectively. Banks can generally cut costs, mitigate risk, and boost revenue by implementing new technology like analytics, bots, RPA, and report generation (Deokar & Darekar, 2020). As a result of primary data analysis, three themes emerged; Efficient and Effective, Customer Satisfaction and Risk Management, and Cost and Time Value.

Theme Three: Efficient and Effective

Efficiency and effectiveness are significant advantages of using AI applications in Sampath bank. The researcher revealed that AI could boost staff efficiency while delivering broad outcomes with fewer resources.

*“AI can increase employees' productivity, and it gives wide results using minimum resources. And also it takes banks in the right direction.... And it helps employees to perform their own works with peace of mind. Because this kind of technology reduces the unnecessary traffic within the bank. what else, when handling the bulk data this machine learning and AI help to manage easily” (P1)*

Time and cost values can be considered as the factors that enhance efficiency and effectiveness by using AI applications in Sampath bank. Efficiency involves time. Not as much time is consumed while using AI applications. Effectiveness involves both cost and time. By using AI applications, banks provided maximum service exploitation of minimum resources.

Theme Four: Customer satisfaction and Risk Management

The analysis showed customer satisfaction and risk management as a superior advantage of using AI in Sampath bank. It exposed that by using AI applications, the banker can provide banking services as the customer expected. It will enhance customer satisfaction. The analyzed results disclose that Sampath bank focuses more on new generational customers, which is a significant reason to go with AI.

*“To provide the best customer service, we know now the current generation is moving with fast technological things right, so they are improving more with this advanced technology. And also, they are willing to get experience with this new thing. For that*

*Sampath bank wants to satisfy the expectations of the customers. The best example is the Sampath Wallet application” (P2).*

According to the analysis outcome, risk management is also a significant benefit. The bank is most concerned with risk management and has a superior function in risk management. It is highly required to maintain quality and the best risk management process when handling public money. Therefore, AI applications are used as a risk management tool to aid banks' functions

*“... Help to Risk Management by looking at historical data, doing risk analysis, and eliminating human errors from hand-crafted models” (P3)*

To mitigate the risk and cut off operational cost, the banking sector is adopting updated technologies like AI, cloud, and blockchain (Wamba-Taguimdje et al., 2020). AI assists customers in executing their tasks, speeding up response times, accurately processing data, keeping humans informed of recent changes, and more. Therefore, all of these actions assist banks in lowering costs (Deokar & Darekar, 2020).

#### Theme Five: Competitive Advantage

As stated above, AI was initiated to implement AI applications in the Sri Lankan banking system. Thus, the respondents had a good and proud feeling about Sampath bank. Furthermore, they explained how they were determined to utilize Sampath AI applications.

*“Sampath bank getting the competitive advantages. Not only Sampath bank, when any business is moving with technology, but they can also have this competitive advantage. I can surely say that Sampath bank is the only bank using this much of technological products” (P1)*

#### **Objective Three: To examine how AI applications assist sustaining Sampath bank during the COVID-19 crisis**

Due to the COVID pandemic, the financial system is one of the most affected. In particular, Banks had to deal with much change and have gone through a lot of it. In the context of Sri Lanka, the COVID pandemic impacted the entire country in many ways. The financial system has a significant role in the development of developing countries (Fernandez, 2019). This sub-objective exposed two themes; Severe deviations, New technological aids.

#### Theme Six: Severe Deviation

During the COVID pandemic situation, the whole world faced a severe deviation. However, this theme has been created to reveal banking function deviation during the COVID

pandemic. The analysis showed that the banks have changed their day-to-day activities due to the pandemic.

*“Minimum branches opened, little staff worked, Restrictions and governance have daily put some restrictions, and we had to act under that. So it was very difficult to continuously do activities. And banks faced to credit risk due to non-performing loans, investment got stopped. So COVID impacted in many ways to the banks” (P2)(E4).*

Furthermore, they stated that banking institutions face many operational challenges, including significant loan impairment losses, credit origination and risk management, digital customer connections and flexible commercial models, operational efficiency and business continuity management, and finance and liquidity.

#### Theme Seven: New Technological Aids

According to the data analyzed, Sampath bank has modernized new technological aids to overcome the adverse effect of the pandemic. They have used existing AI applications more efficiently and developed existing technologies used by AI software. Those new technological aids have directed Sampath bank toward a new normal during the pandemic.

*“Even in the situation of minimal staff, AI applications helped to reduce the impact of that. Customers used mobile apps which used this AI software and fulfilled their needs. Example Vishwa online, Wepay, Instant Loan likewise” (P2).*

#### **Touchless Cash Withdrawals**

Eliminating the need to touch the ATM's surface physically is expected to reduce danger and improve consumer safety, making it a perfect way to withdraw cash from ATMs amid the current global COVID-19 outbreak. By using this, customers of Sampath Bank and all other banks in the country can now use the Sampath WePay app to withdraw cash from their accounts and cards at any Sampath Bank ATM around the island by simply scanning the QR code displayed on the ATM screen. This application was also first introduced by Sampath bank. The researcher personally visits to check this application.

*“Sampath Bank newly introduced Touchless cash withdrawals method from ATM. It helped to provide safety of Coronavirus” (P3).*

#### **Mobile Branch with Pick-Me**

During the COVID pandemic, the government restricted travelling, leading to a lockdown. In such a situation, people did not have cash in hand since banking customers needed to visit

banks to make their withdrawals and struggled with having no money for consumption purposes. Nevertheless, under lockdown, it was impossible to visit their branches. Sampath bank has found a solution to aid their customers in this situation. Sampath Bank and Pick-Me ride have combined and established a mobile ATM as obligatory. When customers inform the bank they need to withdraw, bank provides Mobile ATMs through the Pick-Me service. All functions of this have been implemented using AI software. Therefore, many customers in Sampath bank did not face any inconvenience, and their loyalty has upgraded through these services.

*“Keep connected with customers through using new technological marketing strategies. And used mobile ATMs to support the customer by combining with Pick-Me” (P1).*

### **Introduced Chatbot**

Banks run with a minimal number of employees during a pandemic, and the workload increases under this scenario. To sort out this problem, Sampath bank introduced the Chatbot service. This is a mobile application that can be moderated at any place. If customers require any information regarding their banking activities, this chatbot can provide the solutions as requested. Many solutions have automated responsible.

Overall results revealed that the AI application assisted Sampath bank in overcoming the pandemic situation, and it also discovered how it assisted Sampath bank in facing it more efficiently.

### **Sub Research objective four: To understand why AI applications are essential to Sri Lankan banks' sustainability to combat future obstructions.**

This objective was offered to gather opinions on why AI applications are essential to Sri Lankan banks' sustainability in facing future obstacles. These questions are directly linked with the primary objective of the study. Under this sub-research question, two themes have been identified: Inadequate and Unsatisfactory, Protection and Precautions.

#### **Theme Eight: Inadequate and Unsatisfactory**

When respondents questioned whether the current AI applications were sufficient, the answers reflected inadequate and dissatisfaction. According to their views, they think the current applications within the banking system are insufficient. Furthermore, they suggested that existing applications should be developed, and new AI technologies should be implemented in the Sri Lankan context.

*“Should improve new ways to implement those technologies. And the government also should help” (P1).*

*“No. As an initiator of AI applications, we can see a huge gap in AI implementations with Sri Lankan Banks. Most of the banks couldn’t face this crisis successfully because they were not updated with new technology (E4) (E5).*

#### Theme Nine: Protection and Precautions

This investigation discovered that AI applications should be implemented as a precautionary tool to protect from uncertainties like the COVID crisis. During the COVID pandemic, AI applications have been used more than traditional functions. Technology was the only thing that helped to conduct banking operations,

*“Always need to keep a backup plan to face such crisis. And should move with new technologies like AI” (P1).*

*“The lesson is we should always keep with new technology because it will be the only thing to survive and sustain the banking business. And also we should be prepared for any bad situations” (P2),(P3).*

Considering the overall analysis result, current AI applications within the banking industry are insufficient. In Sampath bank, their usage is high compared to the other Sri Lanka banks. However, the IT experts at Sampath bank expressed that even their applications are not enough to overcome the negative consequences of a crisis like COVID. Thus, to mitigate the risk and impacts of a crisis, banks should enhance its AI implementations and move toward a global direction.

## **5. Conclusion**

The primary objective of this study was “understanding why new normal banking practices need to enhance AI applications to sustain from a future crisis like the COVID pandemic”. This study was conducted as a case study by selecting Sampath Bank PLC. The semi-structured interview method was used for primary data collection and triangulation was used for secondary data collection. Five employees who are experts in the IT department at Sampath bank’s head office participated in the primary data collection process through Phone and E-mail platforms. The thematic analysis technique was used to summarize primary data. This study designed nine themes according to the above sub-research questions.

The major AI applications that Sampath bank uses are, Banking Robot, WePay Digital wallet app, Cash-less app, Card-less app, and Instant loan App (P1, P2, E5). AI enhances the

efficiency and effectiveness of both parties while doing banking activities, mitigating cost and reducing time consumption of each party (Chase, 2002). Simultaneously, AI enhances customer satisfaction, does risk management, and supplies more excellent support to the bank. During the COVID period, Sampath bank used AI in designing mobile branches combined with Pick-me rides to provide ATM service to the customers. Another application was Chatbots.

Subsequently, this study revealed that the current usage of AI applications were insufficient and inadequate. As a result of insufficient AI applications, most banks could not effectively overcome the adverse impact of COVID crisis. Meanwhile, AI technology assisted Sampath bank during the COVID. Therefore, developing existing AI applications and implementing new AI applications is essential to overcome future crises like COVID-19. Thus, according to this study's findings, Sri Lankan banks should enhance new AI applications, and regulatory authorities must provide infrastructure facilities to develop advanced technologies in the banking sector.

The study has several limitations that impact the reliability and validity of the research findings. These findings have certain limitations in terms of generalizability. The research sample does not reflect all Sampath bank branches since only the Colombo district and the head branch were included in the research sample. Therefore, attention should be paid when reasoning these research findings to other geographical areas in Sri Lanka. The most significant drawback is the small number of participants with similar career backgrounds. This study used just five respondents, limiting the generalizability of this research contribution. The researcher, however, chose not to recruit any further respondents due to time restrictions and geographical barriers.

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