



Supply Chain Management Information System Analysis In Services Private Banks

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Abstract

This study aims to get a more specific understanding by describing the Supply chain management information system in the mobile banking application and understanding the effectiveness of the use of m-BCA as a form of information system. This type of research is descriptive quantitative by analyzing and identifying problems in finding the effectiveness of m-BCA information system. The data collection process in this study was carried out by conducting experiments using m-BCA which became the main source and other data sources taken from various media containing m-BCA report data. Based on the results of the data that researchers do refer to the 3 main functions of mobile banking, namely convenient, practical and easy. While the results of 300 mobile banking users 93.3% rated effective at the level of need and convenience. Then 10% less effective and 3.3% less effective users agree and disagree because the UI (User Interface) of mobile banking is less attractive. Finally, the security level can be assessed as effective with a percentage of 80% and less effective 20% because the application login security does not yet have a fingerprint and face id which he thinks is more secure and practical.

Keyword :
*BCA Mobile Banking,
effectiveness, Management
Information*

INTRODUCTION

Advances and technological developments in the business world make information systems very important to help business activities can run well and correctly (Boiko et al., 2019). With the rapid advancement of technology today, almost in every field requires a system to manage an information, one of them in the field of banking. Thanks to the development of Technology, various innovations have emerged to facilitate human relationships, one of which is financial technology, or "fintech" for short. In Indonesia, fintech is one of the business sectors with rapid development in the field of technology. Fintech is an abbreviation of the word 'finance and technology' which means a technological innovation and digitalization of financial services. The innovation offered by fintech is very broad and in various segments, ranging from B2B (Business to Business) to B2C (Business to Consumer). Some of the businesses incorporated in fintech are the process of buying and selling shares, payments, peer to peer lending, fund transfers, retail investments, Financial Planning (personal finance), and others. Fintech information systems in the banking sector are expected to solve problems that have been identified, Decision Support, Expert Systems, and Executive information systems.

A system derived from the Yunani (sustēma) is a unit made up of components or elements that are connected to facilitate the flow of Information, matter, or energy to achieve a goal. While information comes from the Latin word (Informatinem) is a collection of data or facts that have been organized into something useful for the recipient. According to (Fiorini & Jabbour, 2017) an information system is a collection of hardware and software designed to transform data in a more useful form. An information system is a system that provides information to management during decision making and also to carry out the operations of a company, where the system is a combination of people, information technology and regulated procedures. The term information system is often confused with management information system. The two things are actually not the same. Information system is a framework that does things that are processed in the form of input data that turns into information to achieve company goals with the help of several components in the form of humans, computers, Information Technology and work procedures (Elizabeth et al., 2004). While the Management Information System (MIS), a type of information that is specifically intended to produce information for management at the time of decision making (Erkan et al., 2009). Companies cannot develop properly if they are not supported by the role of information systems. Because with the advent of information technology, all types of activities in business can improve the efficiency and effectiveness of business processes, support decision-making processes and strengthen the competitive position of the business. Every organization can use the internet and information technology networks to carry out various electronic activities. Managers in various organizations are also expected to be able to easily analyze their performance effectively and efficiently with the use of available information technology. The use of information technology is associated with its importance in the management decision-making process. We can see that there is still a lack of organizations in the public sector and private organizations in the private sector that implement management information systems in decision making. The development of information technology also affects the business world, one of which is banking. One manifestation of technological developments now is that there are many banks that have provided access to mobile banking.

Mobile banking is a banking activity that uses internet technology as a medium to make transactions via smartphones (Evans et al., 2022). Mobile banking services can be used by using the menu that is already available in the application. Mobile banking offers convenience for customers because they can complete banking matters in

minutes, besides being able to transact anytime 24 hours a day, 7 days a week, and anywhere. As one of the largest private banks in Indonesia, PT Bank Central Asia Tbk provides mobile banking or m-BCA services that have the convenience of being able to access directly via smartphone. The reason why choosing Bank BCA as the object of research is because bank BCA is able to provide quality services and make customers satisfied with its services. This is evidenced by Bank BCA serving banking transactions to more than 24 million customer accounts through 1,248 branches, 17,623 ATM and hundreds of thousands of EDC (Electronic Data Capture) with internet banking and mobile banking services (BCA Annual Report, 2020). On the BCA website mobile banking can be used by anyone who has a BCA card, except “tahap tabunganku” cannot use mobile banking because the stage is intended for children. With this concept, Bank BCA hopes that Indonesian citizens who usually conduct financial transactions at the bank can now access m-BCA quickly, easily and fun without having to go to the office or bank BCA because wherever and whenever m-BCA can be accessed easily. On February 21, 1957, one of the Indonesian conglomerates, Sudono Salim as the owner of the Salim Group, established Bank Central Asia NV, which was headquartered in Jakarta and had branch offices in various Indonesian cities. Over time, mobile banking application was released in 2011, initially mobile banking application can only be used by BlackBerry users, but in 2012 mobile banking application can also be used by Android and iOS users.

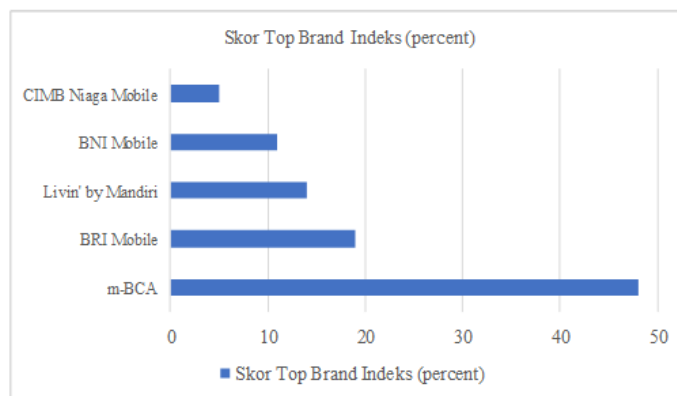


Figure 1. Most popular Mobile Banking applications in Indonesia (2021)
Source: Top Brand Award, June 2021

According to a survey conducted by Top Brand Award, mobile banking is the most popular mobile banking application in Indonesia in 2021. This assessment was conducted based on a survey of 8,500 respondents spread across 15 major cities in Indonesia. The mobile banking application from Bank Central Asia (BCA), m-BCA, scored 47.4%, the highest compared to its competitors. In second place there is BRI Mobile with a score of 19.4%. Followed by Mandiri with 12.9% and BNI Mobile with 11.2%. Meanwhile, CIMB Niaga Mobile has the lowest score on this list, at 3.8%.

Mobile banking is currently needed and has a positive and negative impact. In the press release of BCA 2021 stated Bank BCA has been using strategic technology, and using advanced technology that has become an important element for the competitiveness of bank BCA. With this technology, Bank BCA makes it easy for customers to access information about anything about bank BCA, so that customers can easily get the desired information. In addition to the positive impact, the negative impact that will be caused by the use of Management Information Systems at BCA Bank, this usually happens to BCA Bank which will lose consumer confidence due to various reasons, including the use of internet technology which often results in breaking into the system by hackers. This breach of the management information system can

occur and have a major impact on the company because important information sources have been stolen. In addition, the occurrence of system errors on the website, usually because the website is not updated or because of system disruptions, so that consumers will find it difficult to get clear and up to date information from BCA Bank. Although this information is very important to attract consumers. Finally, the negative impact of using the management information system at BCA Bank is unwanted losses, caused by dishonesty, improper business practices, human factor errors or electronic system errors. In addition, the existence of mobile banking as a form of Information System is also a demand that must be met because currently the competition in the banking world is getting tougher such as financial innovation in the form of financial technology (fintech) which is needed in the business world to achieve the goals of companies that work effectively and efficiently. The existence of various types of mobile banking also shows the development of fintech and information systems that continue to evolve and make new innovations in the banking world. Digitalization in the financial services sector does not always have a positive impact. One of the negative impacts of digitalization is the increasing social inequality. ATM service providers are usually only located in the city center. This means that millions of people living in remote rural areas have to travel long distances to urban centre's to retrieve money. Only a few agents who serve cash withdrawals with admin fees are quite expensive, this makes the social inequality communities with very limited internet network.

LITERATURE REVIEW

Management Theory

Management comes from the Latin word manager (manus) which means to lead, handle, organize, or guide. Management is the science and art of managing the process of utilizing human resources and other resources effectively and efficiently to achieve a certain goal (Robert et al. 1999).

Supply Chain Management Information Systems Theory

In a company will not be separated from the various problems that exist in the organization and changes that often occur, so these changes often become a barrier for managers and then as a result of these changes cause problems. Therefore, in need of a management information system to support managers in solving these problems. Information systems not only process data into information but also transmit information to support the decision-making process.

Supply Chain Management Information System can be defined as a set of related sub-systems, forming as a whole, relationships and cooperation between one part and another in a certain way to perform data processing functions, receive input (input) how much data, then process (process) and produce output (output) of some information as a basis for making decisions that are useful and have real value that can be felt as a result both at that time and in the future, support the operational, managerial, and strategic activities of the supply chain in organization, by using the various resources available to the function to achieve the goal (Dasari et al., 2022).

Mobile Banking BCA

Mobile Banking (M-Banking) was first launched by Exelon in late 1995 and the response has been mixed. The background to the presence of mobile banking is caused by other banks that currently want to gain the trust of their customers. And one way is to take advantage of all the technology that supports. Mobile Banking as one part of internet banking (e-banking) is the latest wireless banking information service offered by the bank using smartphone technology to support the smoothness and ease of banking activities. With mobile banking, customers do not need to go to Automatic

Teller machines (ATM) or bank offices to perform banking transactions such as money transfers, balance checks or paying bills except cash withdrawals (Jayawarsa et al., 2021). Mobile banking application service that provides ease and convenience in banking transactions either through KlikBCA or m-BCA such as balance check, account mutation, fund transfer, and Bill Payment features that are easier and can be done anytime and anywhere through m-BCA at mobile banking. KlikBCA with m-BCA has the same function but, KlikBCA can be accessed through the website while m-BCA can be accessed through the application. To use mobile banking, customers must first register with the Bank. Customers can take advantage of mobile banking by accessing the menu available on the application installed on their smartphone. If the customer uses mobile banking through an application installed on the smartphone, the customer must download and install the application on the smartphone. When opening the application, the customer must enter the User-ID and password to login, then the customer can select the available transaction menu and be asked to enter the One Time Password (OTP) when making a transaction.

Previous Research

Other research on mobile banking was also conducted by (Rigawan & Afriyeni, 2019) who said that the role of the bank's information system has an important role as a success because it is an operating support system and a management support system. With mobile banking service, customers feel like they have an Automatic teller Machine (ATM) BCA in their hands (except for cash withdrawals). Various banking transactions can be carried out by customers through their mobile phones, such as easy transactions at Automatic Teller Machine (ATM) BCA. The next study was conducted by Kun and Namho (2009) who said that the success factor of mobile banking is due to the positive influence between system quality on usage, user satisfaction, and quality of mobile banking services at m-BCA, which means that every improvement in system quality will increase the use of mobile banking. In addition to positive assessments on mobile banking, there are also negative assessments such as research results (Qingji et al., 2021) that there are negative responses to the results of testing mobile banking application scenarios, namely the transaction process in the interbank transfer menu is too much, the light indicators contained in the application make respondents have to pay attention to the color of the lights displayed before making transactions, information about image captions and text is not very appropriate on the M-Payment and m-Commerce menus. The purpose of this study was to determine what information is available and that we can per by in mobile banking and determine the effectiveness of the use of mobile banking as a form of information systems.

Data and Research Methods

Methodology comes from the words (method) which means the right way to do something, and (logos) which means science or knowledge. So, methodology is a way of doing something by using the mind carefully to achieve a goal. The definition of research methodology (research method) is a science that explains how should and should Research be done. According to (Meghna, 2021) methodology is a science or study related to research, while research shows the implementation of research methodology. The study that discusses scientific methods for research is called research methodology. The type of research conducted is descriptive quantitative. Quantitative descriptive is a type of research used to analyze data by describing or describing the data that has been collected. This descriptive study aims to gain a deeper understanding in the field more specifically and transparently to collect actual and detailed information that also describes the information system in mobile banking. Analyze and identify problems, uses, and applicable information systems. View and

discover the effectiveness of information systems available at mobile banking by reading public comments about the advantages or disadvantages of information systems available. While the data retrieval process in this study was conducted by conducting experiments in using mobile banking which became the main source and other data sources taken from various media that are loaded on the data report about mobile banking on the Financial Services Authority (OJK) web and Top Brand Award, questionnaire results, company websites, articles and so forth. The location of this research was conducted in West Jakarta by distributing questionnaires and using the Simple Random Sampling technique. For the type of population, namely employees, students, and teachers as many as 300 samples of mobile banking users.

Finding and Discussion

The application of computer and telecommunications technology in the field of banking information technology system (TSI) is currently growing rapidly in line with advances in Information Technology. Banking information technology system (TSI Banking) is a system of processing financial data and electronic banking services through computers, telecommunications, and other electronic means. Utilization of information technology systems to improve the effectiveness and efficiency in the implementation of tasks and services to the community. Banks seem to be vying to implement information technology into their systems. Because with information technology, bank management can be done more efficiently and of course the impact that can be felt by the community is the easier it is to transact. The success of a bank is generally determined by the quality of performance of information technology systems that will continue to be developed to meet the business interests of the bank and customers. In the banking world, the development of Information Technology forces companies to change their business strategies by placing technology as a key element in the process of product and service innovation. For example, electronic transaction services (e-banking) through Automatic Teller Machine (ATM), phone banking, and internet banking are new forms of banking services that replace manual transaction services into technology-based transaction services. In a report The Financial Services Authority (OJK) recorded a surge in the use of mobile banking and internet banking by 300 percent this year. One of the triggers is the impact of the Covid-19 pandemic and the massive development of digital banking product services. However, digital transformation has also made some banks close because they are out of competition. From 2017 to August 2021 there were 2,593 banks closed. Not only that, electronic money transactions in 2015 to 2020 increased by almost 47%, from Rp5.28 trillion to Rp204. 9 trillion. This increase can be seen from the increase in the number of accounts or account holdings to 337 million in 2020. This study was conducted by collecting data in mobile banking which was then analyzed and concluded to be a field fact about the application information. And here is the data collection of research results that we conducted regarding the information available and that can be obtained in mobile banking.



Figure 2. BCA Mobile Home display
Source: BCA Mobile Application 2022

In the Home of BCA Mobile view, there are 6 Services, the first one is m-BCA (mobile banking) is a banking product service of PT Bank Central Asia Tbk that can be accessed directly by customers through mobile phones, either by using the menu that is already available on the Subscriber Identification Module (SIM) Card, by using SMS media or using the menu on mobile banking by using the internet network media on the mobile phone combined with SMS media in accordance with applicable policies at BCA. Mobile banking is an application that can be downloaded from BCA's official website or BCA's official designated application/software distribution media owned by the mobile operating system contained in the customer's mobile phone to make transactions through m-BCA and KlikBCA to get BCA Info. Second, there is KlikBCA (internet banking) service that is specifically for BCA bank customers can be accessed through a web browser or mobile banking application. To be able to enjoy this service, customers need to register at BCA ATM machines or seek customer service assistance at branch offices. Furthermore, the banking customer will have a user ID and password to login. Its function is not much different from m-BCA, where customers can perform various transactions, except cash withdrawals. Third, Info BCA is a service of various information about BCA for customers. Fourth, on the Home screen, prospective customers can open new accounts or additional accounts according to their needs in the open new account service. Fifth, in the change Access Code service, customers can change the security code before entering the m-BCA service if the code used is no longer safe or someone else knows it. Sixth, the Flazz service can be used only on Android smartphones that have Near Field Communication (NFC) features. If you have the device, you can view the balance information on the Flazz card and information on the last ten transactions through mobile banking.



Figure 3. Features on m-BCA
Source: BCA Mobile Application 2022

The picture above is a display in m-BCA with various service features as follows:

1. m-Info (balance Info, account mutation, credit card Info, exchange rate Info, others and Inbox)
2. m-Transfer (Inbox, transfer between BCA accounts, BCA virtual account, transfer between banks that are members of PRIMA network and Transfer list)
3. m-Payment (credit card bill payment, mobile, telephone, public/utility, insurance, internet, loan, other and Inbox)
4. m-Commerce (Inbox, stock and purchase of recharge vouchers,)
5. m-Admin (delete Transfer list and delete payment list, delete credit card Inquiry, register credit card Inquiry, Change PIN) BCA Keyboard (access mobile banking simply from the smartphone keyboard without having to go back and forth to open mobile banking)
6. Flazz (View balance information on Flazz card and information on the last ten transactions through mobile banking)
7. BagiBagi (sharing money as you wish during special moments as a form of appreciation)
8. Lifestyle (flight ticket, train ticket, daily shopping, game voucher, streaming voucher, hotel, event Ticket, attraction ticket, shopping voucher, cinema ticket, taxi, health)
9. QRIS (transaction method using QR code).

In addition to conducting research on existing information and that can be obtained from m-BCA, researchers also conducted research on how effective m-BCA is as one of the mobile banking by referring to the 3 functions of the application itself. According to Amit & Bikramjit (2020) effectiveness is a measure of how far the target of both quantity, quality and time has been achieved in accordance with what is planned. The greater the percentage of targets achieved, the greater the effectiveness and vice versa, the smaller the percentage of targets achieved, the smaller the effectiveness. This research data was obtained from the m-BCA application, web, and previous journals that provide relevant information, then analyzed and summed up into a field fact about how effective the M-BCA application is. And here is the data collection results of research that researchers do the effectiveness of m-BCA as one of the mobile banking.

Judging from the BCA website, mobile banking itself has 3 functions, namely First, convenient ease of banking transactions directly from a smartphone through the M-BCA

menu without the need to change SIM cards. Second, it is practical with the complete and modern transaction service features without having to come to the branch office. Third, it is easy because of the facility of transfer and payment lists that can be stored to facilitate further transactions. When viewed from the Top Brand Award data, m-BCA is the most popular mobile banking application in Indonesia in 2022 with the highest score compared to its competitors of 47.4%.

Based on the results of this study, m-BCA is still lacking in providing information services, low display, and difficulty in accessing m-BCA. The following information has been obtained from the results of the assessment questionnaire of M-BCA users regarding the effectiveness and information systems in the can.

Table 1. BCA Mobile's effectiveness percentage data

Information	Percentage		
	Don't agree	Disagree	Agree
m-BCA easily accessible anywhere?	6.7%		93.3%
m-BCA has served as needed?	6.7%		93.3%
The m-BCA display has access speed in finding the required information and providing complete information?	3.3%	10%	86.7%
m-BCA provides a good security guarantee?		20%	80%

Source: Primary Data, year 2022

Based on the research that the researchers conducted on 300 mobile banking users, the results that the researchers got were 93.3% of users agreeing that m-BCA is easy to access anywhere and has served as needed. The results of 6.7% of users do not agree that m-BCA is easily accessible anywhere, it can be accessed by several factors such as internet network disturbances, indicator lights that do not work and the occurrence of server downs. In addition, users do not agree that m-BCA has served as needed, this is due to the slow response from customer service who handles problems with mobile banking account users and there is no accessibility feature in order to facilitate all groups in conducting banking activities. Then the mutation feature located in m-Info does not provide complete information and can be viewed in only 7 days. This makes customers unable to view the history of mutations within 7 days and above. If the customer wants to see the mutation history for more than 7 days, the customer must first go to the office to record the mutation in his savings so that the customer has to spend more time. Furthermore, on the m-BCA display, which has access speed in finding the information needed and providing complete information, the percentage of users is 86.7% agree, 10% disagree, and 3.3% disagree. Users disagree and disagree because the UI (User Interface) of mobile banking is very simple and unattractive, users hope to improve it to make it more attractive. But on the other hand, with a simple display model on mobile banking , it becomes very easy to remember to use again and the application becomes light and stable to use. Regarding m-BCA providing good security guarantees, 80% agree and 20% disagree. Its use if mobile banking will be even better if the use of security in the application login has a finger print, or face id which is more secure and practice.

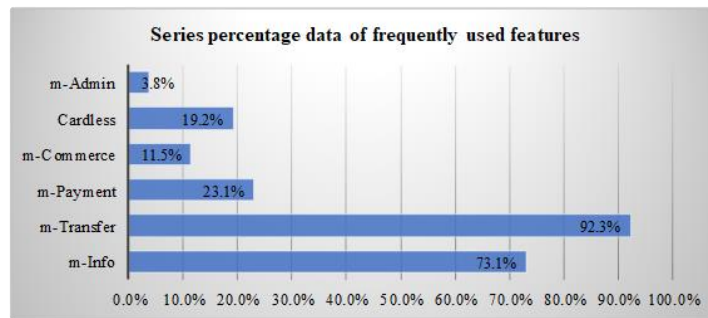


Figure 4. Percentage data of frequently used features.
Source: Primary data, year 2020

The diagram above is the result of a questionnaire on services from m-BCA which is often used by users of the mobile banking application. The percentage of features that are most used by users are m-transfer as much as 92.3% and m-Info 73.1%. Mobile banking features that are rarely used by users are m-Admin 3.8%, m-Commerce 11.5%, Cardless 19.2%, and m-Payment 23.1%. On average, mobile banking users often use the m-Transfer feature for transfers between accounts, bank transfers, BCA virtual account transfers, Sakuku, and inbox information. Meanwhile, m-Info is used to view balance information, account mutations, deposit accounts, BCA reward info, mutual funds, RDN, KPR, and credit card.

CONCLUSION

In Based on the results of the research that researchers have done, it can be concluded that the mobile banking application is included in one of the mobile banking services that provides various information and services that we can get. The information includes m-Info, M-Transfer, m-Payment, m-Commerce, m-Admin, BCA Keyboard, Flazz, Bagibagi, Lifestyle and QRIS. In this feature we can get more information or more details about a service needed by the user. In addition to m-BCA, the mobile banking application also provides services such as KlikBCA (internet banking), BCA Info, opening a new account, Change Access Code and Flazz. And as one of the most popular mobile banking applications in Indonesia, mobile banking also deserves to be examined regarding its effectiveness as mobile baking when viewed based on the data that the researchers did referring to the 3 main functions of mobile banking, namely First, the convenience of banking transactions directly from a smartphone via the m-BCA menu without The need to replace the SIM card is said to be very effective when viewed from the customer's point of view that the customer can make transactions with the existing menu, and does not need to have special skills to use it. he. Second, it is practical with complete and modern transaction service features without having to come to the branch office. This function is not effective because there are features that still cannot provide complete information to users, such as m-Info for account mutations which can only be viewed within 7 days and can be reached for a maximum of 31 days. Third, it is easy because of the transfer facility and a list of payments that can be stored to facilitate further transactions. This function is said to be effective because the m-BCA menu is designed in such a way that it is easy to use by anyone. The customer must choose the type of transaction from the available menu, so there is no need to remember/memorize the transaction code to be executed. Meanwhile, at the level of need and comfort, m-BCA is considered effective with a percentage of 93.3%, and a less effective percentage value of 6.7%. At the level of information display is also considered effective with a percentage of 86.7%, 10% less effective, and 3.3% ineffective. Users disagree and disagree because the UI (User Interface) of mobile banking is very simple and unattractive, users hope to improve it

again to make it attractive. And lastly, the security level can be assessed as effective with a percentage of 80% and less effective at 20% because of the absence of finger print and face id. It can be said that BCA Mobile has been effective and informative for mobile banking users and really provides various features to assist the activities of its customers. It's just that the display and access security need to be improved.

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