

Analysis Of Digital Product For Multipurpose Financing through the Mobile Banking System as a Digital Transformation Effort in Bank X

Rosalyn Febriyani Inaku

Master of Management Program, Mercu Buana University
Jakarta, Indonesia

Tukhas Sihlul Imaroh

Master of Management Program, Mercu Buana University
Jakarta, Indonesia

Abstract:- Banks need to provide digital financing services without place and time restriction to improve effectiveness, efficiency and create faster, more comfortably and better continuity of service to customers. Bank X which operates in Indonesia seeks to improve the performance of online financing services in order to improve overall financing performance. This study aims to determine the effectiveness of the mobile banking model of online financing service compared to traditional manual models; to find out the constraint factors experienced after the launch of online financing products; to find out solutions to solve online product financing constraints. The research method which used is descriptive qualitative research. This study uses primary data and secondary data as well as improvement methods using the Six Sigma DMAIC (Define-Measure-Analyze-Improve-Control) method. The results showed that the number of successful online partner financing applications disbursed was 11.15% of the total submissions. The effectiveness of online multipurpose financing product can acquire new regular manual financing by 65%. There are 6 factors that give a high impact on the low disbursement of online multipurpose financing product including: bad reputation of collectability, service failed (system constraints), name data does not match the civil registration data, and approval limit is below Rp 10.000.000, does not meet risk acceptance criteria, customer debt burden ratio more than 50%. Solutions to solve problems include expanding market segments, improving the IDEB system, developing product feature changes by relaxing the bank's risk acceptance criteria from DBR to DSR, increasing the financing period and limit to more than IDR 50,000,000, developing automation recommendations to other financing options with a small limit such as a paylater in mobile banking if the customer gets the minimum financing limit.

Keywords:- Six Sigma, Digital Banking, Digital Financing, Digital Transformation.

I. INTRODUCTION

The development of information technology in the digital era has brought changes in the management and operations of the Bank. One of the other phenomena that has emerged in the era of digital financial transformation is financial technology (fintech). The background for the emergence of fintech is when there is a problem in society that cannot be served by general banking because of strict regulations from the regulator and the limitations of bank branches to serve the community in certain areas. With the existence of fintech, it has created various financial service opportunities by adopting digital transaction banking, convenient to use, paperless and user-friendly that provides added value in meeting customer satisfaction. According to the 2019 Islamic Finance National Committee, Indonesian people who are not familiar with bank transactions as much as 76% of the population, if only 2/3 of them already have a mobile phone, then they can recognize financial transactions by accessing fintech applications. According to Indonesia Financial Authority, fintech growth experienced a high increase, especially in the type of digital financing, reaching 249 trillion rupiah until August 2021 or increase of 60% compared to December 2020.

Year	Number of Fintech Entity	Accumulated Financing (Rp. Billion)	Accumulated Volatility (%)
2018	-	22.666,07	-
2019	164	81.497,51	259.56
2020	149	155.902,55	91.3
2021	116	249.938,00	60.32

Table 1: Financial Technology Lending
Source : Indonesia Financial Authority (2021)

Digital technology that used by fintech has driven positive and negative changes for individual customers and for banks. In the digital transformation business process, it makes easy for customers to order products, deliver goods, make payments or transactions for various things easily and efficiently from fintech applications. This effect continues to the price of the product which will be cheaper, this is because the marketing and administrative processes can be minimized. With this shift in activity towards digital, Banks that are still running traditional business processes will be abandoned by their customers. Therefore, the presence of digital transformation is a must for Bank X to improve digital-based services that create efficiency, cost saving, and able to encourage innovation and

to provide speed in service, in line with the Bank's Vision and Mission to become the top 10 Global Islamic Bank in the world.

Bank X is a sharia banking financial services company whose business entities that carry out their operational activities based on sharia principles (based on Qur'an and Hadist). Financing is an activity of a Sharia Bank in distributing funds to parties other than the Bank based on Sharia principles. The distribution of funds in the form of financing is based on the trust given by the owner to the users of the funds. The recipient of the financing has the trust of the financier, so that the recipient of the financing is obliged to return the financing that has been received in accordance with the agreed period in the financing contract. Bank X has several financing programs which include: Mudharabah, Musyarakah, Murabahah and Bai' Salam financing.

With this financing, it is hoped that it will encourage the community to be able to create businesses and to develop them. Recently, Bank X financing has begun to be intensively disseminated to build the community's economy or also to meet the needs of the community. One of them is Civil Servants (PNS) or Candidates for Civil Servants (CPNS), in Indonesia there are not a few people who work as PNS/CPNS. There are also many civil servants who need a lot of funds to meet all their needs, such as multipurpose financing, education costs, home renovations, and other needs. So that it encourages to do financing to the Bank. The financing provided by the Bank to customers almost entirely requires collateral in the form of principal guarantees or additional guarantees to cover if one day the debtor cannot pay its obligations to pay off debts in accordance with the agreement.

One of the financings at Bank X that has been transformed into a digital process is online multipurpose financing that does not require collateral. This financing is a new financing service from Bank X, with a multipurpose purpose, the process of which is full digital financing (processed end-to-end through digital solutions) through Bank X's mobile banking, starting from customer submissions to financing disbursement (process less than 15 minutes). The online multipurpose service, which was just launched on 1 November 1 2021, provides a financing limit from Rp. 10,000,000 to Rp. 50,000,000, currently it is still intended for the special segment of payroll customers, namely for civil servants that their institution has collaborated with the payroll system with Bank X. This multipurpose digital financing product can be accessed anytime and anywhere by using the "Bank X Mobile" which is Bank X mobile banking application.

This Online Multipurpose Financing product has advantages over competing products from other Banks, namely that customers can apply for this financing from Bank X Mobile from anywhere without coming to the branch, no need to complete and send personal files, without collateral, safe according to sharia, and the financing process takes no more than 15 minutes.

Innovations in the operation of digital financing application services have been able to shorten the operational service time of the financing process in 15 minutes to 1 day as long as the results of data verification held by the Bank are complete and appropriate. If there are incomplete and other technical problems, the customer can reapply from the beginning at a different time or submit a complaint to the Bank X Call service for disbursement.

Based on the monitoring observation of online multipurpose financing since the trial run started from 16 September 2021 to 7 February 2022, there have been problems that encountered, as presented in the following table based on data obtained on 7 February 2022:

Financing Application Data	Number of Case	Volatility
Received Financing Application	11888	100%
Successful Financing Application	1326	11%
Pipeline (Potential Successful Application)	1407	12%
Rejected Financing Application	9155	77%

Table 2 Financial Technology Lending
Source : Data Bank X (2021)

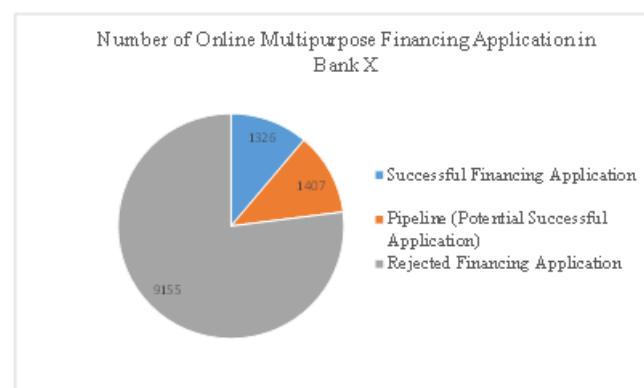


Fig. 1: Number of Online Multipurpose Financing Application in Bank X
Source : Data Processed (2022)

Based on the above data, it can be seen disbursed financing applications is very low and rejected financing applications is very high. Therefore, it is necessary to conduct research on the evaluation of digital financing products at Bank X, especially Multipurpose Online financing through mobile banking as an effort of digital transformation to improve financing performance at Bank X by considering the constraints/problems that occur in its financing services.

One method of process improvement that is often used is Six Sigma method. The application of the six sigma method has proven to be very suitable for the needs of the service industry (Sharma & Chowhan, 2013). There have been many studies on the successful implementation of Six Sigma in the financial sector. Based on the description above, researchers are interested in using the six sigma method in improving online multipurpose digital financing products as an effort of transform digital banking at Bank X.

II. LITERATURE REVIEW

Theory of Sharia Financing Product

The definition of financing is funding provided by a party to another party, to support planned investments, either by themselves or by institutions. The difference between the term financing and credit is if the term financing is used for Islamic banks, while credit is for conventional banks. In addition, what distinguishes between financing and credit is that Islamic banks are based on the principle of profit sharing or “ujroh” on financing, while for conventional banks, it is based on the principle of interest profit. According to Indonesia Law No. 7 of 1992 concerning banking as amended to Indonesia Law No. 10 of 1998 concerning Banking in Article 1 number (12):

"Financing based on sharia principles is the provision of debt or claims equivalent to it based on an agreement between the Bank and other parties that require the party to be financed after a certain period of time with compensation or profit sharing".

Financing in Islamic banks contains various elements that stick together, namely:

1. Trust
2. Term
3. Risk

Online Financing is a type of financing that can be submitted online through a mobile application, without the need to meet face-to-face. This method provides convenience and speed in the financing application process. Online financing is growing very fast in Indonesia. The convenience and speed of process are the main attraction. Financing applications, which have been known to be long and complicated, can now be done quickly, easily, online and without face to face.

➤ Digital Transformation

According to Danuri (2019), Digital transformation is a change way of handling by using information technology to gain efficiency and effectiveness.

Application of Digital Banking in Islamic Banking

One of the challenges of Indonesian Islamic Banking is Information Technology (IT). Things that need to be anticipated when using digital and automation technology, are the increasing efficiency of product production and marketing, changes in the composition of human resources and aspects of customer protection.

Conceptually, according to Cisco Consulting Services (2014), the concept of Bank 4.0 was formed in the era of the internet of everything where its form can be applied with the existence of digital banks, mobile banking, digital branches, intercloud, omni-channel analysis and "Market Of One" Customer Centricity. In the development of digital banking, each era has a focus on improving customer experience that combines human resources, processes, data and other supporting parts into a more personal digital banking concept, according to each customer's needs.

Welcoming the era of Bank 4.0, Islamic banking digital banking products and services that can be offered to customers are in the form of Automated Teller Machines (ATM), electronic data capture (EDC) machines, electronic banking products, in the form of mobile banking, internet banking, Cash Management System (CMS) , Officeless Financial Services (Laku Pandai), and e-money. Digital banking services and products continue to be developed by optimizing the use of customer data in order to serve customers more quickly, easily, and according to customer experience, and can be completely and independently carried out by customers, taking into account security aspects.

➤ Basic Concept of Six Sigma

Six sigma is a method for improving business processes that aims to find and reduce the causes of failures and errors, to increase productivity, to meet customer needs effectively, and to get a better return on investment in terms of production and service (Evans & Lindsay, 2007)

According to Chase (2011), Six sigma uses DMAIC methodology (Define, Measure, Analyze, Improve, Control).

➤ Define

The define stage is the first operational step in the Six Sigma quality improvement program (Gaspersz, 2002). This stage is carried out to determine critical things that are considered by consumers.

➤ Measure

The measure stage is the second operational step that aims to evaluate and understand the current condition of the process or performance. At this stage, data collection and processing is carried out before improvement is carried out.

➤ Analyze

The third stage is analyze, which is the stage of determining the cause and effect of a problem and understanding the existence of source of variation from the data obtained at the measure stage (Montgomery and Woodall, 2008). In addition, a fishbone diagram is also made to determine the causal relationship of a problem. Fishbone diagrams are very useful in quality improvement because of their ability to visualize the root of the problem simply as shown in Figure 2.1.

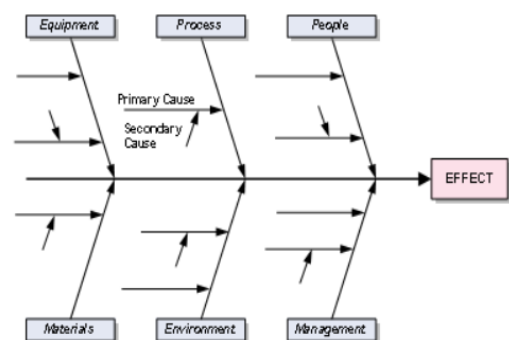


Fig. 2: Cause and Effect Diagram (Fish Bone Diagram)
Source : Heizer & Render (2015)

➤ *Improve*

This stage is an operational step which is the stage of drafting improvement proposals to be later implemented in the Bank. There are many improvements used to improve the process seen from several factors, namely humans, methods, environment, and measurement.

➤ *Control*

This stage is the last operational step in the six sigma method in which the process of monitoring the performance of the process that will come after undergoing improvements is carried out.

III. RESEARCH METHODOLOGY

The research approach used descriptive qualitative research using case study methods that focus on historical, descriptive and action analysis. Historical research is obtained by collecting, examining and evaluating the process of Multipurpose Online financing application. While descriptive research aims to determine the root cause of rejected financing. Furthermore, with action research, it is hoped that the causes can be known and overcome so that the rejected financing can be minimized.

Several approaches were used for primary and secondary data collection, namely by conducting direct observations and interviews with the project management team that became the object of research, including the Digital Asset Project Manager who also acted as a subject matter expert in this study. Meanwhile, secondary data was obtained from internal data of Bank X as well as literature studies from various publications and journals related to this research.

IV. DISCUSSION

This study uses Six Sigma methodology based on DMAIC stages with an explanation of each stage as follows:

Define stage

The online multipurpose financing product was launched in August 2021. The effectiveness of both regular and online multipurpose financing in the period August 2021 to February 2022 is shown in the following figure.

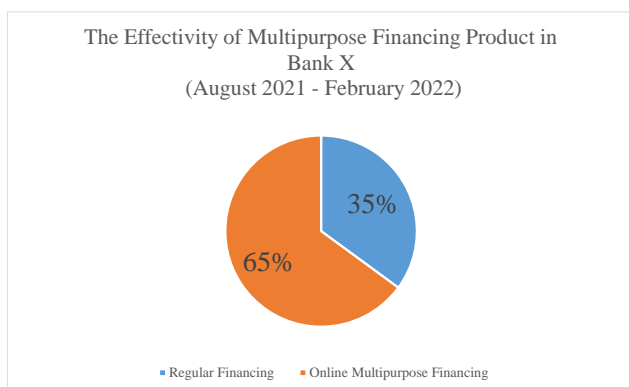


Fig. 3: The Effectivity of Multipurpose Financing Product in Bank X
Source : Data Bank X (2022)

In this study the define stages can be seen in the following figure.



Fig. 4: Improvement Charter
Source : Researcher Data (2022)

Measure stage

At the Measure stage, it is necessary to define problems as a reference in making improvements. Determination of the problem is done by means of a workshop with the core team.

Based on the percentage of the total number of problems, customer collectibility problems, service failures, and the suitability of customer demographic data are the top three problems faced in the online multipurpose digital financing process. For more details, the problem data as presented in the following Tables and Figures.

Problem	Number of Case	%	Successful Application Criteria
Bad Collectibility	2315	25.29%	No laws disability; unpaid history
Service Fail	1906	20.82%	Customer's civil registry data is successfully verified; Debtor information system data is appropriate
Customer Data does not accordance with civil registry office	1900	20.75%	NIK (ID Number) is up-dated
Approval financing limit less than Rp 10.000.000	1374	15.01%	Minimum customer income more than Rp. 2.500.000
Customer capability does not meet Risk Acceptance Criteria (RAC)	1133	12.38%	Customer's age is more than 52 years old, payroll registration is Bank X, customer's profession is civil servant, no history of financing restructurization/write-off
Customer's Debt Burden Ratio (DBR) more than 50%	527	5.76%	Customers may not have installments in total that exceed 50% of their income

Table 3 Case of Rejected Financing Application
Source : Data processed (2022)

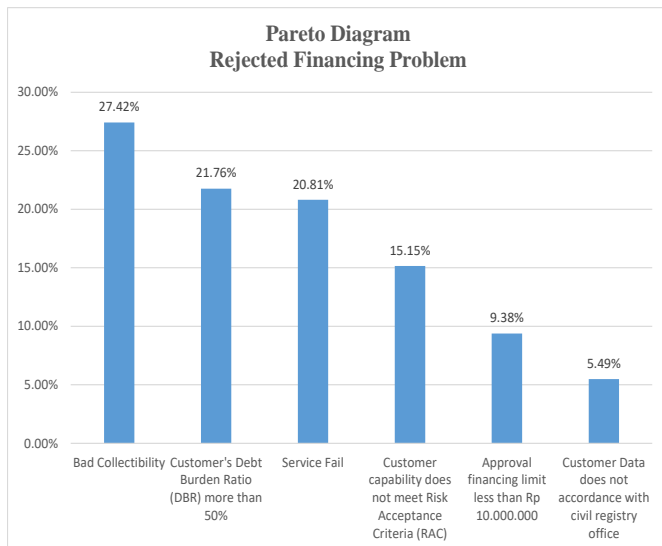


Fig. 5: Pareto Diagram of Rejected Financing Problem
Source : Researcher Data (2022)

Analyze Stage

In the analyze stage, a causal analysis is carried out regarding the problems that arise and resulting in a low level of liquid financing. The cause-and-effect analysis used in this study is a fish bone diagram. Cause-and-effect analysis data were obtained from the results of discussions through Focus Group Discussions (FGD), the results of researcher observations, and interviews with the Group Head. The cause and effect diagram of the rejected financing problem can be seen in Figure 4.6.

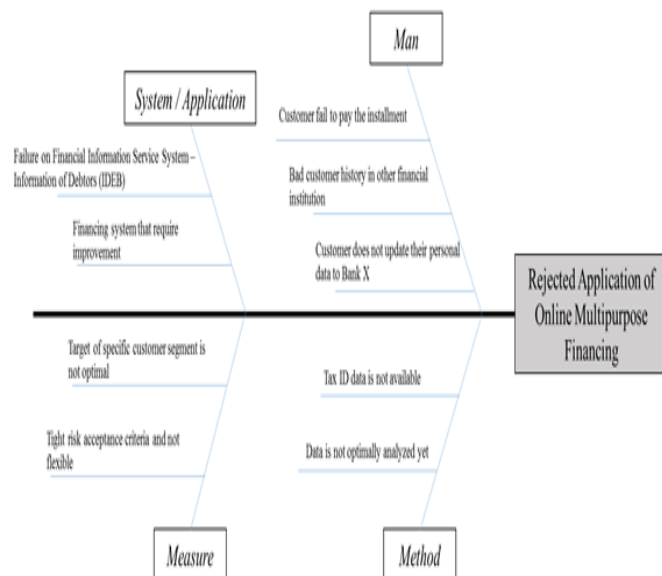


Fig. 6: Fish Bone Diagram of Rejected Financing Problem
Source : Researcher Data (2022)

The high rate of failure to disburse online multipurpose financing can be caused by the following problems:

- Bad collectibility problems due to unpaid installments and poor financing history in other finances.
- Service fail problem was caused by OJK IDEB SLIK (Financial Information Service System of Debtor Information operated by Indonesia Financial Authority) was having problems and the financing system needed improvement.
- Customer data problem that does not match with civil registry office data that because the customer does not update the data.
- Approval limit problem of less than Rp. 10.000.000 due to marketing analysis data that is not optimal.
- Customer capability does not meet Risk Acceptance Criteria (RAC). It is caused that criteria is intended for a limited segment, namely payroll of civil servant officer in the first stage with a limited amount and a limited tenor
- Problems of Debt Burden Ratio (DBR) of more than 50% due to strict and less flexible risk acceptance criteria.

Improve Stages

In the improve stage, researchers and team members determine solutions to fix problems (defects) of online multipurpose financing that occur through dashboard monitoring, brainstorming with business units, risk units, operation financing units, digital banking operations units and group of information technology strategy and development.

From the results of the brainstorming, the action plan or solution determined by the researcher and the team as shown in Table IV.

Control Stage

During research, solutions and improvement initiatives are still in the process of implementation and development. Therefore, the results of improving the online multipurpose financing system through mobile banking can only be monitored through the results of user acceptance test (UAT) for several development initiatives. From the results of the UAT, it was concluded that the developed system could run well in accordance with the established design.

In implementing of this improvement proposal, it is necessary to update the standardization of policy procedures and product manuals. The purpose of updating standard procedure policy is to serve as a guide for the Bank in the implementation and business processes of online multipurpose financing in accordance with current conditions.

Changes in procedural policies that support the improvement of the online multipurpose financing system can be seen in the following table.

Rejected Financing Problem	Solution	Initiatives	Follow Up
Bad Collectibility	<ul style="list-style-type: none"> - Improve the number of application for online multipurpose financing - Expanding market segments 	<ul style="list-style-type: none"> Expanding segment to Bank X employees Develop multipurpose financing top up for existing customer 	SDLC (Software Development Life Cycle) <ol style="list-style-type: none"> 1. Forum Group Discussion with Project Team 2. Establish CR, Business Requirement 3. Technology Development 4. SIT 5. UAT 6. RCB 7. PTR 8. Live
Service Fail	<ul style="list-style-type: none"> - Improve IDEB System - Partnership with API (Automation Protocol Interface) to access IDEB in order to avoid dependency to Financial Information Service System from Indonesia Financial Authority (OJK SLIK) 	<ul style="list-style-type: none"> Improvement of IDEB System Select reliable IDEB vendor that has successful rate 90% 	SDLC (Software Development Life Cycle) <ol style="list-style-type: none"> 1. Forum Group Discussion with Project Team 2. Establish CR, Business Requirement 3. Technology Development 4. SIT 5. UAT 6. RCB 7. PTR 8. Live
Customer Data does not accordance with civil registry office	the customer is notified to update the data to the Bank via mobile Banking and branches via push notification and whatsapp blast as well as develop a service where customers can update their NPWP (tax ID) or NIK (identity number) data when applying for financing via mobile banking and the data will be updated to the Bank's main data	Enhancement of online multipurpose financing with updating Tax ID dan ID number in mobile banking	SDLC (Software Development Life Cycle) <ol style="list-style-type: none"> 1. Forum Group Discussion with Project Team 2. Establish CR, Business Requirement 3. Technology Development 4. SIT 5. UAT 6. RCB 7. PTR 8. Live
Approval financing limit less than Rp 10.000.000	<ul style="list-style-type: none"> - Risk Acceptance Criteria relaxation - Notification of other digital financing recommendation such as paylater or other digital product - Extending the choice of online multipurpose financing period 	Development of a Decision Engine to provide the right financing options if customer can't apply for online multipurpose financing	<ol style="list-style-type: none"> 4. SIT 5. UAT 6. RCB 7. PTR 8. Live
Customer capability does not meet Risk Acceptance Criteria (RAC)	<ul style="list-style-type: none"> - Risk Acceptance Criteria relaxation - Expanding new market segment beside civil servant that payroll registered in Bank X - Develop additional system that can verify performance allowance income for customer from civil servant - Develop additional system that can verify all customer segment payroll system in Bank X - Add financing limit to be more than Rp 50.000.000 dan add time period of online multipurpose financing 	<ul style="list-style-type: none"> Multipurpose Financing Top Up Develop centralized payroll system Increase feature and financing time period 	SDLC (Software Development Life Cycle) <ol style="list-style-type: none"> 1. Forum Group Discussion with Project Team 2. Establish CR, Business Requirement 3. Technology Development 4. SIT 5. UAT 6. RCB 7. PTR 8. Live
Customer's Debt Burden Ratio (DBR) more than 50%	Change DBR to DSR (Debt Service Ratio) in which total installment only calculated in Bank X with percentage > 50%	Develop the change of DBR to be DSR (50%)	

Table 4 Solution And Initiatives
Source : Researcher Data (2022)

Chapter II - General Clause RAC of Online Multipurpose Financing Customer			
No	Item	Clause (Before Amendment)	Clause (After Amendment)
1	Employee Status	Employee has mobile banking	Employee has mobile banking
		Civil servant (payroll registered in Bank X)	Civil servant (payroll registered in Bank X)
			Employee of Bank X
			Employee of State-own-Company (Payroll registered in Bank X)
2	DBR/DSR	DBR 50%	DSR 50%
Chapter II - General Clause Product Feature of Online Multipurpose Financing			
No	Item	Clause (Before Amendment)	Clause (After Amendment)
1	Financing Limit	Online Multipurpose Financing Application maximum Rp. 50.000.000	Online Multipurpose Financing Application maximum Rp. 100.000.000
2	Time Period	1 up to 3 years	1 up to 8 years
Chapter III - Implementation Document Verification			
No	Item	Clause (Before Amendment)	Clause (After Amendment)
1	Customer Data Update	Data verification through system based on ID Number, Tax Number, Marital Status, etc that registered in civil registry office or other authorized sources	Data update through Tax Number, verified authorized tax system (e-confirmation of tax number) and data is saved into core bank data system
Chapter III - Implementation Income Verification			
No	Item	Clause (Before Amendment)	Clause (After Amendment)
1	Income Verification	Income verification for online multipurpose financing based on customer basic salary on SPAN portal for civil servant and take home pay for non-civil servant	Income verification for online multipurpose financing based on customer basic salary on SPAN portal for civil servant and based on employee performance allowance; and take home pay for non-civil servant if digital payroll system was available
Chapter III - Implementation Analysis of Online Multipurpose Financing			
No	Item	Clause (Before Amendment)	Clause (After Amendment)
1	Financing Limit Approval	Not ruled yet	The limit approval of online multipurpose financing for less than RP. 10.000.000 can be recommended to get other financing product (such as paylater or other digital financing) and funding product that suit with customer needs.

Table 5 Change Of Procedure
Source : Researcher Data (2022)

V. CONCLUSION AND RECOMMENDATION

This study describes how to analyze online multipurpose digital financing products through mobile banking to improve digital financing performance through the DMAIC-based Six Sigma process improvement method. Bank X's financing target from online multipurpose financing contributions is to acquire regular financing of up to 80% in order to support go green banking (paperless application), save the service level agreement period and provide a great opportunity to compete with other online financing in the financing market in Indonesia.

At the time of product launch until February 2022, the number of successful online multipurpose financing applications was disbursed as much as 65% of the total submissions. This indicates that the effectiveness of online multipurpose financing can acquire regular financing of 65% from the target of 80%.

The constraint factors that encountered after the launch of online multipurpose financing products were the high number of rejected financing applications caused by 6 factors including: bad customer collectibility, service fail (system constraints), personal data does not match with civil registry office, approval limit was below Rp. 10,000,000, customer

capability does not meet the risk acceptance criteria, and the customer's debt burden ratio is more than 50%.

Solutions to solve the problems on online multipurpose financing product include the following: expanding market segments to increase collectibility; improve the existing IDEB system and in parallel to expedite the assignment of IDEB system services with other external parties so that Bank X does not have dependence on OJK SLIK; the customer is notified to update the data to the Bank via mobile Banking and branches via push notification and whatsapp blast as well as develop a service where customers can update their NPWP (tax ID) or NIK (identity number) data when applying for financing via mobile banking and the data will be updated to the Bank's main data; developing changes in product features by relaxing the Bank's risk acceptance criteria from Debt Burden Ratio (DBR) to Debt Service Ratio (DSR); increasing the financing period and limit so that digital financing can be more than IDR 50,000,000; developing automation recommendations to other financing options with a small limit such as a paylater in mobile banking if the customer gets a financing limit below the minimum limit (under Rp. 10,000,000); solution initiatives to expand to other market segments such as employee of state-owned-company, hospital employees, private employees; initiatives to develop additional systems that can verify all payroll employee benefits and income with Bank X; make changes to the relaxation of customer risk acceptance criteria, which originally used the Debt Burden Ratio installment calculation method to become the Debt Service Ratio installment calculation method for the solution of rejected financing because the customer's installments were already more than 50% of their income.

The researcher's suggestion for the management of Bank X is to recommend that the results of this research be submitted as a strategic initiative to be realized in order to increase the volume of financing and particularly for the online multipurpose financing customer base and generally for active users of mobile banking.

For further research, the researcher recommends to continue the research on the results of monitoring at the "control" stage of online multipurpose financing product after improvement with the DMAIC-based six sigma method so that rejected financing applications can decrease significantly compared to before improvement period.

REFERENCES

- [1]. AGUSTINUS, B. S., IMAROH, T. S., 2021. Waste Minimization Efforts Towards Green Logistic at PT Nardevchem Kemindo. *EJBMR*, 6(4).
- [2]. <https://www.ejbmr.org/index.php/ejbmr/article/view/992>
- [3]. DANURI, M., 2019. Perkembangan Dan Transformasi Teknologi Digital. *INFOKAM*, 5(2), 116-123. DOI <https://doi.org/10.53845/infokam.v15i2.178>
- [4]. EVANS, J. R., LINDSAY, W. M., 2014. *An Introduction to Six Sigma and Process Improvement*. Jakarta : Salemba Empat
- [5]. GASPERZ, V., 2002. *PEDOMAN IMPLEMENTASI PROGRAM SIX SIGMA TERINTEGRASI DENGAN ISO 9001 : 2000 MBNQA DAN HCCP*. JAKARTA : GRAMEDIA PUSTAKA
- [6]. HEIZER, J., RENDER, B., 2015. *MANAJEMEN OPERASI, SUSTAINABILITY AND SUPPLY CHAIN MANAGEMENT*. EDISI 11. JAKARTA : SALEMBA EMPAT
- [7]. JACOBS, F. R. & CHASE, R., 2011. *Operations and Supply Chain Management*. (13th ed.) Boston, MA: McGraw-Hill Irwin.
- [8]. KING, B., 2018. *Bank 4.0. Perbankan di Mana Saja dan Kapan Saja, Tidak Perlu di Bank*. Penerbit Mahaka
- [10]. MONTGOMERY, D. C., & WOODALL, W. H., 2008. An overview of six sigma. *International Statistical Review*, 76(3), 329–346. <https://doi.org/10.1111/j.1751-5823.2008.00061.x>
- [11]. SHARMA, A., CHOWHAN, S. S., 2013. Concept of Six Sigma and its Application in Banking. *Indian Journal of Applied Research*, 3 (7), 433-435.