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The Improvement of Online Transaction Return Process, by using Business Process Reengineering Approach: Case Study of a State-owned Bank

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Abstract

Digital disruption has encouraged banks to consider digital technology as part of their strategies. The main component of these strategies is online banking services. With online banking, customers can easily conduct transactions anywhere, anytime, in an easy way. However, there are still many complaints against banks response time, especially state-owned banks, who regret its transaction return process. To speed up the transaction return process, Business Process Reengineering (BPR) approach are proposed. The case study in this research shows that Business Process Reengineering (BPR) has the potential to increase the efficiency of the transaction return process by 71.67%.

Keywords: *Bank, Business Process Reengineering (BPR), Enterprise Resource Planning (ERP), Online Banking*

1. Introduction

Digital disruption has encouraged banks in Indonesia to consider digital technology as part of their strategy, where the main component of this digital strategy is online banking services. Customer satisfaction is closely related to customer loyalty and retention [1]. Therefore, customer satisfaction in conducting online banking transactions is important. To provide customer satisfaction and increase their competitiveness towards Fintech, banks need to improve service efficiency [2].

Bank reliability in executing customer requests will affect customer satisfaction [3], [4]. There are many complaints against banks, particularly state-owned banks, about the transaction refund prolonged process. The number of complaints will have an impact on the magnitude of the bank's reputation risk, especially in corporate banking where the customers consist of companies.

This research is conducted in a state-owned bank in Indonesia. The methods to obtain the research data are observation and interviews with experts. The expert profile is the managers of the operational and transactional banking departments.

Based on previous studies, it was found that most studies in the banking sector focus on testing the factors that influence customer satisfaction in online banking or the relationship between online banking and customer satisfaction, not on improving bank business processes that have an impact on increasing customer satisfaction [5]–[13]. This paper exists to fill the existing literature gap through case studies so that banks can improve the efficiency of their services.

Online banking is defined as the automatic delivery of banking products and services directly to customers through electronic communication channels, especially the Internet [11]. At present, online banking has reached mass popularity and will lead to a day when there will be no more bank branches because all transactions will be done online [14].

Business Process Reengineering (BPR) methodology has been widely used in various sectors [15], including the banking sector. However, BPR implementation in bank are still limited. Studies show that BPR has been used in online banking initiatives in India [14] and also in the process of opening a digital bank account in Indonesia [16].

IDEF0 is a modeling technique based on a combination of graphics and text presented in an organized and systematic way to gain understanding, support analysis, provide logic for potential changes, determine requirements, or support system-level design and integration activities [17]. IDEF0 consists of data and objects related to their functions. Four arrows are pointing to one function box. The arrow function on the box can be called ICOM (Input, Control, Output, Mechanism) [18].

2. Methodology

This research was conducted by carrying out several steps. The first step is preparing research. This step includes setting goals, scope, stakeholders, and problem identification. The second step is to create the current process flow and analyze the current process. The third step consists of designing a to-be process flow using BPR. The fourth step is defining the system requirements with IDEF0. The last step is to compare the results of the simulation process as-is and to-be processes and calculate time reduction in return transaction process.

3. Result and Discussion

3.1 Bank X's Customer Complaints

The number of complaints that enter the call center of the bank shows that there is customer dissatisfaction with the process of corporate transaction returns at the bank. To find out the percentage of the number of complaints against all transaction returns, customer complaints to the call center division are tabulated based on data from the past 6 months (see Table 1).

Table 1. Number of Return Complain April - September 2019

Month	Number of Complaints	Total Returned Transaction	Percentage
April	354	7497	5%
May	403	8646	5%
June	202	4056	5%
July	394	10827	4%
August	354	7581	5%
September	256	3644	7%

3.2 Current Return Process Flow (As-Is Condition)

The process of returning online transactions in the Operational Division and Transactional Division of Bank X is carried out 8 batches per day and starts at 08.00 to 16.00. This return process starts from the refund and returns data by Bank Indonesia (BI) to the sending bank through the Bank Indonesia National Clearing System. Data returned by BI is in the form of SOR number (return number), name of sending bank, name of recipient bank, recipient data (name of recipient, recipient account number), transaction nominal and reason for return. BI will return this data on the same day the customer transfers (same-day) after the bank's operational hours have ended. One day after the customer made the transfer, the Operational division was tasked with downloading the returned data returned by BI through Bank Indonesia National Clearing System. Data entered in this system is data return for one bank, consequently, the Operations Division is also responsible for sorting transaction return data according to the transaction channel

(personal banking or corporate banking). Corporate returns will be returned to the Transactional division, while individual returns will be returned to other divisions. Return data provided from BI through the Bank Indonesia National Clearing System to the Operations Division will be sent to the Transactional Division in Excel file format via email (see Figure 1).

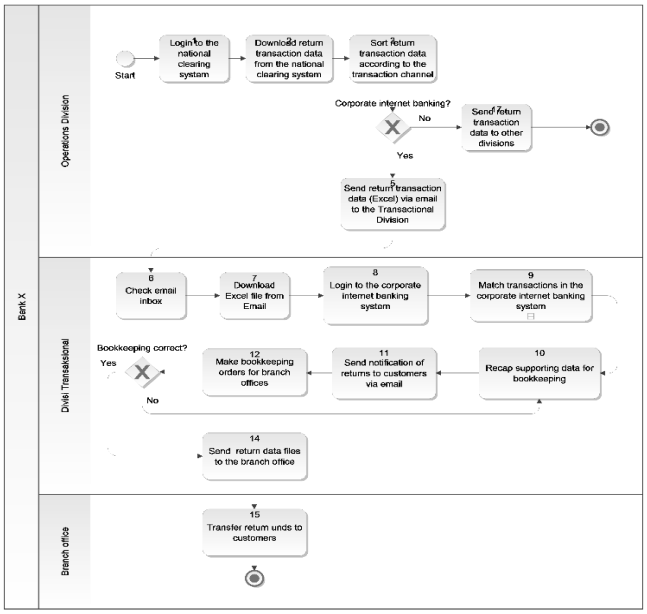

Figure 1. Current Return Process Flow

The Transactional Division then opens an email from the Operations division and processes the transaction (matching) between the Excel file and the system in the Transactional Division. The data that is matched is the sender's data and the sender's transaction history data. The matching process must be done one by one (per transaction) because the Operational division and Transactional division do not yet have an integrated information system that can generate a list of return transactions automatically. Furthermore, the Transactional division will send email notifications to customers regarding the occurrence of returns. To return the funds, the Transactional division must first give bookkeeping orders to the branch office before the branch office can transfer the returned funds to the customer's account in question.

Observation of the transaction returns process starts at 8 A.M until around 5 P.M. Based on the simulation results, the transaction matching process is an activity that has the longest proportion of time needed. Specifically, an average wait of 10 minutes was found in the sub-process "Check the details of each transaction made by the sender" (see Table 2).

Table 2. As-Is Process Simulation Results

Activity Statistics (Minutes)			
Activity	Avg Cycle	Avg Work	Avg Wait
Login to the national clearing system	0.60	0.60	0.00
Download return transaction data from the national clearing system	0.31	0.31	0.00

Sort return transaction data according to the transaction channel	5.18	5.18	0.00
Send return transaction data (Excel) via email to the Transactional Division	0.38	0.38	0.00
Check email inbox	0.64	0.64	0.00
Download Excel file from Email	0.32	0.32	0.00
Login to the corporate internet banking system	0.34	0.34	0.00
Search for sender transaction data in the Corporate Internet Banking system	9.53	9.53	0.00
Check each transaction the sender makes on the related date	2.24	2.24	0.00
Check the details of each transaction made by the sender	21.41	11.41	10.00
Recap supporting data for bookkeeping	11.91	11.91	0.00
Send notification of returns to customers via email	5.44	5.44	0.00
Make bookkeeping orders for branch offices	10.17	10.17	0.00
Send return data files to the branch office	0.30	0.30	0.00
Transfer return funds to customers	4.97	4.97	0.00

Based on the as-is model, the transaction return process at Bank X takes at least around 8.84 hours per day. The time put into iGrafx software is the work time of each activity and does not consider non-productive time such as personal needs, telephone interruptions, and interruptions of conversations with co-workers. To anticipate the non-productive time, the allowance for operators is generally 9 percent [19]-[20].

The simulation results show that some customers still receive a return fund on D+2 since the customer made a transaction, even though Bank X has a target that the return can be completed no later than one day after the customer makes a transaction. Based on interviews with informants, setting the target time for transaction returns for corporate banking is done because generally corporate customers want a fast transfer process so that if there is a return, Bank X must process it as quickly as possible so that customers are not late in making payments and have already filed complaints.

Bank X already has an information system that consists of several features (see Table 3). These features are transfers, mass payments, tax payments, and bill payments. Of all the features currently available, features that need improvement are domestic transfer and bulk payment features. Domestic transfers and bulk payments are made between banks through the central bank clearing system. Transaction returns can occur if the customer incorrectly enters data into his online banking system. As a result, the recipient bank will reject the transaction and return it to the central bank which will forward it to the sending bank.

Table 3. Current System Function List

Features	Sub Features	Functions	Improve?
Transfer	In-House Transfer	Transfer funds to another account at the same bank	No
	Domestic Transfer	Transfer funds to other domestic banks	Yes
	International Transfer	Transferring funds to foreign banks	No
Mass Payment	Bulk Payment	Transfer funds in bulk	Yes
	Payroll Payment	Pay employee salaries	No
Tax	SSP MPN G2	Make tax payments	No

Features	Sub Features	Functions	Improve?
Transfer	In-House Transfer	Transfer funds to another account at the same bank	No
Payment			
Bill Payment	Bill Payment	Make bill payments	No

3.3 Proposed Improvement of Return Process Flow

Improvement of the return process flow involves designing an integrated information system between the Operational Division and the Transactional Division. In the new return process, the Transactional division no longer needs to carry out activities that are non-value-add such as checking email inboxes, downloading Excel files in e-mails, searching for sender transaction data in the Corporate Internet Banking system, checking each list of transactions conducted by senders at related date, check the details of each transaction made by the sender, recapitulate supporting data for bookkeeping, and send notification of returns to customers via email. If this system is implemented, the Transactional division does not need to check transactions one by one but can already receive a list of returns from the system so that it can reduce the processing time of transaction returns (see Figure 2).

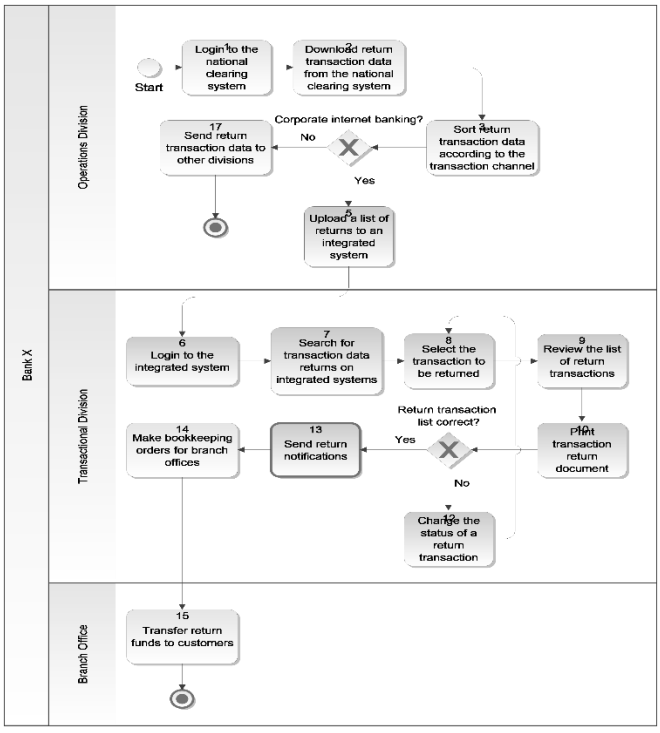

Figure 2. To-Be Model of the Return Process

In the new returns process, the Operations Division can upload a list of returns obtained from the Bank Indonesia National Clearing System to an integrated information system. On the other hand, the Transactional Division can directly search the list of returns on the system, print the document returns from the system, send notification emails to the customer through the system, and view reports of daily transaction return through the system. Thus, the Transactional division no longer needs to do transaction matching. The

process that is still the same as the as-is condition is making bookkeeping orders to branch offices that will transfer funds to customers.

Based on the results of interviews, the time needed to carry out new activities such as "upload a list of returns to an integrated system", "search for transaction data returns on integrated system", "select the transaction to be returned", "review the list of return transaction", "print transaction return document" and "sending return notifications" is estimated to range between 5-30 seconds. The time for other activities is the same as the as-is process because there is no change between the as-is process and to-be process. From the results of the iGrafx simulation in Table 4, the overall time to-be process is 2.5 hours. Consequently, bank X can ensure that the return process can be completed one day after the customer makes a transaction (see Table 4).

Table 4. To-Be Process Simulation Results

Activity Statistics (Minutes)			
Activity	Avg Cycle	Avg Work	Avg Wait
Login to the national clearing system	0.60	0.60	0.00
Download return transaction data from the national clearing system	0.31	0.31	0.00
Sort return transaction data according to the transaction channel	5.18	5.18	0.00
Upload a list of returns to an integrated system	0.44	0.44	0.00
Login to the integrated system	0.34	0.34	0.00
Search for transaction data returns on integrated systems	0.11	0.11	0.00
Select the transaction to be returned	0.12	0.12	0.00
Review the list of return transactions	0.37	0.37	0.00
Print transaction return document	0.13	0.13	0.00
Send return notifications	0.12	0.12	0.00
Make bookkeeping orders for branch offices	10.17	10.17	0.00
Transfer return funds to customers	4.97	4.97	0.00

3.4 Integrated Information System Design

This section specifically will be described regarding software design (software design) using IDEF0 business process modeling techniques. The subject of the IDEF0 model in this research is to design an integrated information system, where the aim is to improve the return process at Bank X.

Diagram A0 provides a detailed sequence of processes for designing integrated information systems. These processes include define system requirements, do feasibility analysis, and initiate the “XDirect” integrated information system design.

Diagram A3 is the result of the decomposition of function box 3 which is “initiate the “XDirect” integrated information system design” in diagram A0. In diagram A3, a list of features will be included in Bank X's integrated information system. These features are the features of transfer management, mass payment, tax payment, and bill payment.

Diagram A31 is a design figure of the transfer process. This diagram consists of design in-house transfer features, design domestic transfer features, and design international transfer features.

Next, from diagram A31, function box number 2, "Domestic transfer testing", is decomposed into diagram A312 (see Figure 3). Diagram A312 is a diagram that arranges the design of domestic transfer trials. Domestic transfers are divided into 2 types based on time of delivery, namely clearing (LLG) and Real-Time Gross Settlement (RTGS). The difference between the two is that the clearing process is also influenced by batch transactions. This does not apply to the RTGS process, where settlement processes are carried out in real-time (without batches)

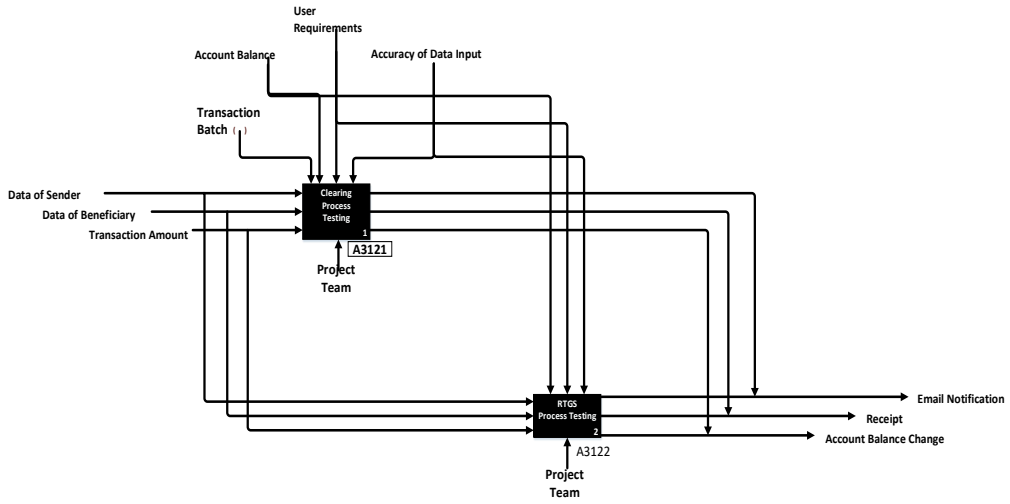

Figure 3. A312 Diagram

The next decomposition is carried out in a diagram A312 into diagram A3121 (see Figure 4). The decomposition is done only for function box 1 in diagram A312, namely "Clearing process testing" because this research only covers the clearing process at Bank X so the RTGS process is not included in it. This A3121 diagram explained the to-be process flow proposed in this study, where in this case the project team will conduct a trial transfer just as the customer will carry out the process.

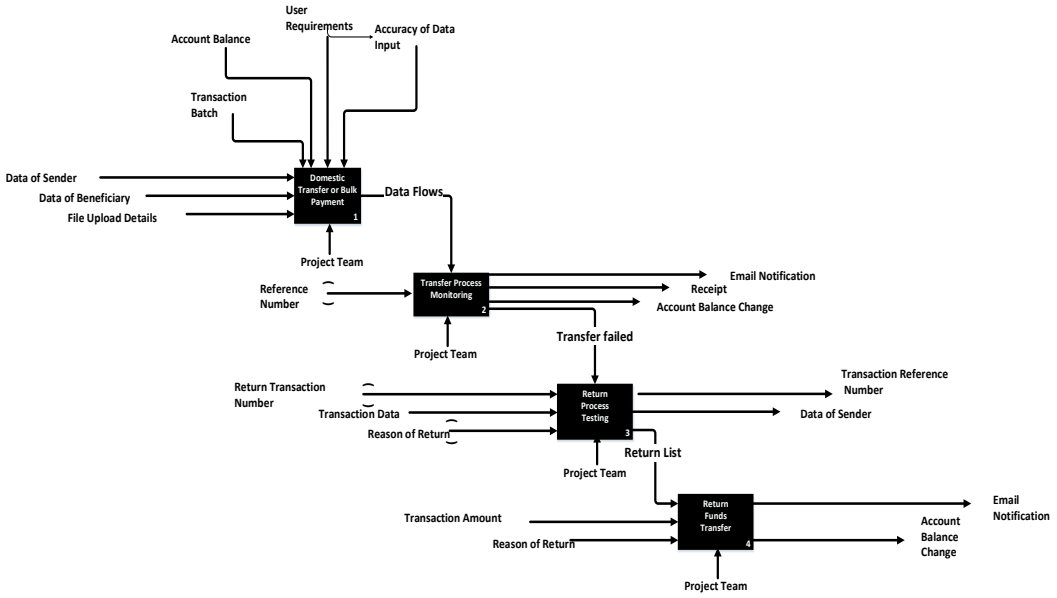

Figure 4. A3121 Diagram

3.5 Comparative Analysis As-Is and To-Be Process

After making and simulating the as-is and to-be processes, then a comparison is made to find out the improvement in terms of time efficiency between the as-is process and the to-be process. Table 5 shows the time comparison results based on iGrafx simulation results.

Table 5. Comparison of Simulation Results

Activity Statistics (Minutes)				
Model	Avg Cycle	Avg Work	Avg Wait	Efficiency
As-Is Model	66.28	58.78	7.50	
To-Be Model	18.78	18.78	0.00	71.67%

4. Conclusion

This research focuses on improving the efficiency of the transaction returns process at one of the state-owned banks in Indonesia. In the as-is process, there is no integrated information system between the Operational Division and Transactional Division of Bank X. Consequently, simulation results show that the average cycle of the as-is process is 66.28 minutes with an average wait of 7.5 minutes. The proposed improvement in the to-be process involves designing an integrated information system that is intended for the Operational Division and Transactional Division of Bank X. Based on simulation results, the average cycle of the to-be process is 18.78 minutes without any average wait with an efficiency of 71.67 percent.

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