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Business Process Improvement Using Bpi Method in the Implementation of Communication Network Device to Support Online Bank Branch Office and ATMs

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Abstract

Business Process Improvement or BPI is a systematic framework built to assist organizations in making significant progress in the implementation of their business processes. BPI provides a system that will assist in the streamlining of business processes, by guaranteeing that internal and external customers of the organization will get better output than before, the purpose of this research is to provide business process improvement solutions with the BPI methodology in the implementation of the network device to support online ATM dan branch office. PT bank ABC is one of the biggest state-owned banks in Indonesia, which was established on December 16, 1895, in Purwokerto, Central Java. Currently has more than 20,000 office locations throughout Indonesia, where all these offices are online using Fiber Optic, MPLS, and VSAT technology, currently the business flow of the implementation process has not been optimal and is monitored manually with a long bureaucracy. An analysis of the activities in each business process is carried out where each of these activities has different characteristics, where we find 7 activities have value as real value-added (RVA) 6 activities that have value as business value-added (BVA), and 20 activities that have value as non-value added (NVA). Using streamlining tools provided by BPI we can streamline the existing business processes where from the results of streaming on the old business process we get 20 activities that have value as NVA can be streamlined using the Bureaucracy Elimination tool and 13 activities that have value as BVA and RVA can be streamed using the Upgrading tool. The results of the analysis are obtained by comparing the current business process and what is proposed from this research. After process improvement, The results of the simulation using bizagi software show that the processing time required to run the process is shorter in the recommended business process compared to the existing business process, where the average time required before is 10 Days 3 Hours 38 Minutes 45 Seconds with 33 activities involved and after we streamline it with Bureaucracy Elimination tool and Upgrading tool, we found the new average time is 3 Days 2 Hours 42 Mins 30 seconds and the new business process only have 14 activities. Based on the evaluation and simulation results that we have done Further research can use the evaluation results as a reference in the preparation of analysis and development of software applications and further research can develop an analysis that uses cost details that are not available in this research.

Keywords: Business Process Improvement, BPMN, information system, Banking, Network Implementation.

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1. INTRODUCTION

The development of services in the banking business area is growing very rapidly, supported by technological advances that increasingly spoil human life. Banks must strive to improve quality that provides many conveniences and benefits to create customer satisfaction. With the assumption that customer satisfaction is achieved, it is expected that the company's income will increase and in the long term, the company can develop in line with the trust of its customers. The corporate image plays an equally important role, not only impacting consumer perceptions of the good or bad of a company but also having an internal impact. A good corporate image is intended so that the company can survive and the people in it continue to develop creativity and even provide more meaningful benefits to others. As one of the biggest state-owned commercial banking companies in Indonesia, which was established on December 16, 1895, in Purwokerto, Central Java. Currently, it has more than 20,000 office locations throughout Indonesia, where all of these offices are online using Fiber Optic, MPLS, and VSAT technology supported by complex enterprise architecture to support the business with a secure and robust system [1] and the architecture shown on the image below:

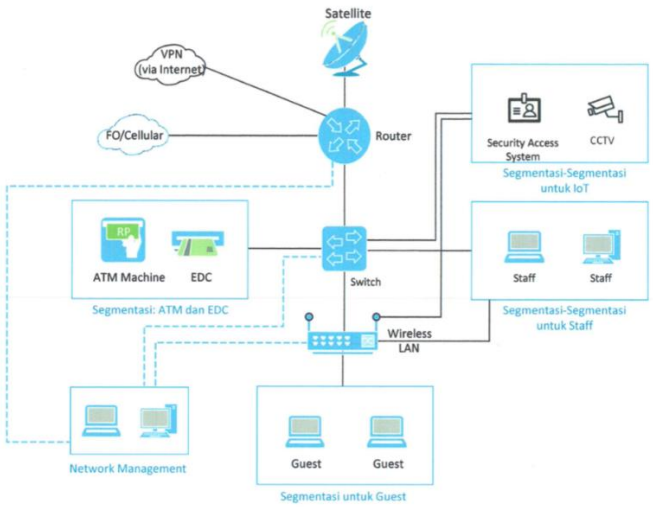

Figure 1 ATMs and branch network architecture

A business process is it is the business process that is the key element when Integrating an enterprise[2], besides a business process is defined as a collection of activities that takes one or more kinds of inputs and creates an output that is of value to the customer [3] [4]Business Process is related to the enterprise as it defines how the goals of the enterprise are achieved [2], [5]. Business processes are also defined comprehensively, namely, a business process is a network of activities

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and buffers with defined boundaries and precedence relationships, which utilize resources to transform inputs into outputs for satisfying customer requirements [5], so it can be concluded that the definition of a business process is a collection of activities that process inputs into outputs that provide value to the company.

One part of the banking service business process is the process of implementing a communication network to support online services both at the office and at ATMs and sometimes for the sake of improving office and ATM services, these are moved to strategic locations to reach a wider level of society where this process is called As a process of relocation (moving equipment to other location) and repositioning (shifting equipment in the same building), requests for transfer of communication network equipment need to be monitored properly to minimize errors that occur which can ultimately improve Key Performance Indicators and achieve Service Level Agreement on network services. to support the implementation of their business processes. Some of the current conditions can be described as follows:

- There is no integrated system from users to providers where when it is necessary to transfer communication network equipment, requests are still made manually using the Digital Office application.
- The business flow of the relocation and repositioning process has not been optimal and is monitored manually so that there are difficulties in obtaining information.
- From the implementation data in 2018, 2019, and 2020, it was found that there were requests for the transfer of communication network equipment with a total of 4780 points, of which only 3684 points were successfully completed, or around 77.07% of the total requests issued.
- Ineffective use of resources, especially human resources, and the use of time because it should be with an integrated process that does not need to be updated regularly, but the process of updating information has been carried out by each party involved in the business flow of relocation and repositioning of communication network equipment.

In other words, the business process becomes less effective and efficient. By measuring the business process and business process reengineering in this research, it is hoped that the company can develop a business process that best suits the company's needs in the context of managing the implementation of communication network equipment and achieving effectiveness and efficiency in the process of managing the communication network equipment. Based on the studies that have already been done by several writers in the past [6]–[11], Business process improvement is proven to be helpful to make the organization get its goals faster . The formulation of the problem can be identified as How is the current Business Process for Relocation and Repositioning of the Communication

network equipment and how is the new Business Process for Implementing the communication network device for the NCI Team so that it can run as an efficient business process?

The purpose of this research is to obtain the results of business process improvement on the NCI Team with the BPI method and build a new business process design which is the result of the business process improvement of the NCI Team. The scope of this research is how to use the streamlining improvement technique from the Business Process Improvement method to Make Recommendations to improve business processes Relocation and Repositioning of network equipment Communication related to Business Process Improvement and simulate it by comparing the processing time of the old business process compared to the running time of the new business process using the bizzagi simulation tool but does not discuss the implementation of business process improvement results.

2. METHODS

The old process that is currently running has a problem where all systems have not been integrated and data processing is still done manually. Integration in processes that are interconnected between unit offices, branch offices, regional offices, head offices, and providers must be carried out. Business Process Improvement or BPI is a systematic framework built to assist organizations in making significant progress in the implementation of their business processes. BPI provides a system that will assist in the streamlining of business processes, by guaranteeing that internal and external customers of the organization will get better output than before [12]. By doing business process improvement, it is hoped that the process will be faster in the sense that business processes run faster where IT officers do not need to carry out long-winded and complicated procedures. With this better business process, it is expected to provide a higher level of satisfaction to all stakeholders involved in the business process.

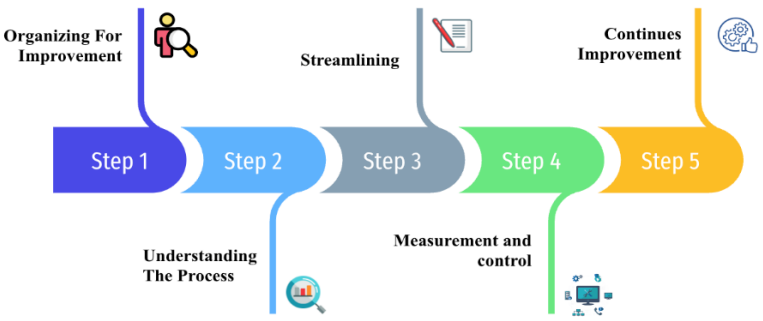

Figure 2 Thinking Methodology Framework

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Before making changes to the business process, it is necessary to collect data on the relocation and repositioning of Work Permit (SIK) data in the Network Configuration and Implementation (NCI) function. In addition to collecting the data, it is also necessary to conduct interviews with the management of the NSO Department, NCI employees, branch office IT officers, and e-channel divisions in regional offices and providers. The methodology that will be carried out to carry out business process improvement in the NCI Department Team NSO INF division of PT Bank ABC uses the BPI method [12], the steps to be taken are as follows:

1. Organizing for Improvement
   This stage is carried out by analyzing which steps need to be carried out in the business process of relocating and repositioning communication network devices
2. Understanding the Process
   The problem faced by the NSO Department is that the business procedures that are carried out are not efficient. Business Process Modeling is designed to analyze ongoing processes so that it can be used to find out which steps are inefficient[13]. Business process modeling is made with BPMN (Business Process Model and Notation) notation [14]and activity and property table creation.
3. Streamlining
   By using the table from the results of the business modeling, an analysis of the old business process can be carried out. By doing this analysis, the changes that can be made as well as solutions to the existing problems can be obtained. This analysis process must be carried out properly because with this it can be seen how the change process can occur such as:

a) Bureaucracy Elimination (eliminate unnecessary administrative work, licensing, and paperwork)
b) Duplication Elimination (removing activities that are almost the same in a process)
c) Generate new business process solutions with better execution time.

4. Measurement and control
   After the Relocation and Repositioning of business processes have been simplified using Business Process Improvement, then a business process improvement proposal is made.
5. Continues Improvement
   This is done by comparing the processing time of the old business process compared to the running time of the new business process using the bizzagi simulation tool.

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3. RESULTS AND DISCUSSION

3.1 Organizing For Improvement

This stage is the first stage in Business Process Improvement (BPI), by analyzing existing business processes it will be known which business processes need improvement. PT Bank ABC is one of the state-owned commercial banking companies in Indonesia, which was established on December 16, 1895, in Purwokerto, Central Java, and has more than 20,000 office locations throughout Indonesia. With an organizational chart as shown in figure 3. PT Bank ABC is led by 1 president director, 1 deputy president director, 10 field directors, 6 SEVPs, and 9 commissioners, based on published financial reports PT Bank ABC has 117,592 employees consisting of 61,242 permanent workers, 24,024 contract workers, 191 trainees, and 31,953 outsourced workers. PT Bank ABC is a state-owned enterprise that is engaged in the banking business, the largest bank in the Micro, Small, and Medium Enterprises (MSME) segment with the largest micro banking services in Indonesia. In addition to focusing on the MSME segment, PT Bank ABC also continues to develop various consumer banking products and services. institutional services for urban communities are determined to continue to support the efficiency of national economic activities while increasing the convenience and ease of customer transactions by the development of banking service needs for all levels of Indonesian society where PT Bank ABC has several savings products, loans, and several banking services.

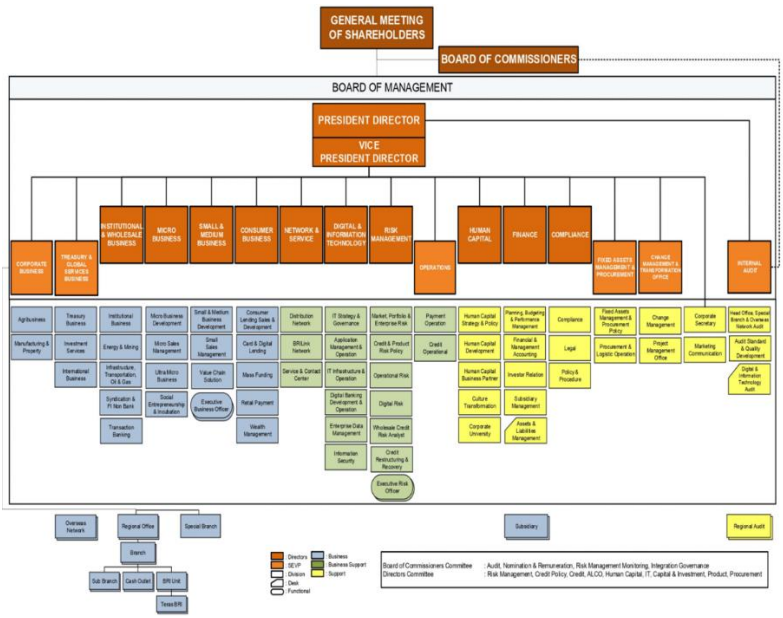

Figure 3 Organization Chart PT Bank ABC

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By PT Bank ABC's mission to continue to support increasing efficiency in national economic activities while at the same time increasing the convenience and ease of customer transactions by the development of banking service needs for all levels of Indonesian society, PT Bank ABC must have speed in providing banking services anywhere in Indonesia were among many business support activities. Among other things, this is done by moving offices and ATMs to locations that are needed and can feasibility meet business expectations or because of orders from the Indonesian government as the majority shareholder. Based on the data obtained by the author for 3 years, the request for relocation and repositioning of communication network devices to support the relocation of the Branch office / ATM is as follows:

Table 1 Work Permit (SIK) Summary

NO	PROVIDER	SIK 2018	SIK 2019	SIK 2020	TOTAL SIK
1	SATKOM	667	623	790	2080
2	TELKOM	573	435	487	1495
3	PATRAKOM	169	179	133	481
4	PSN	105	89	59	207
5	TANGARA	61	87	59	207
6	ICON	36	45	54	135
7	LINTASARTHA	21	20	6	47
8	INDOSAT	5	3	2	10
9	INTI	0	25	58	83
TOTAL SIK		1637	1506	1637	4780

Based on the data above, we can see that every year there are thousands of shifts in Branch offices and ATMs where each of these movements requires good speed so that service to customers is not disrupted. Considering that this Branch office /ATM move was initiated by the branch office of PT Bank ABC and approved by the distribution network division at the head office, it described in a business process as follows:

1) Business process for branch office relocation
2) Business process for ATM machine relocation
3) Business process or relocating communication network devices for branch offices and ATMs

To capture business potential and carry out tasks from the government to provide banking services to the public, PT BANK ABC requires office relocation to the required location, this office relocation was initiated by the PT bank ABC branch office with the following business process flow:

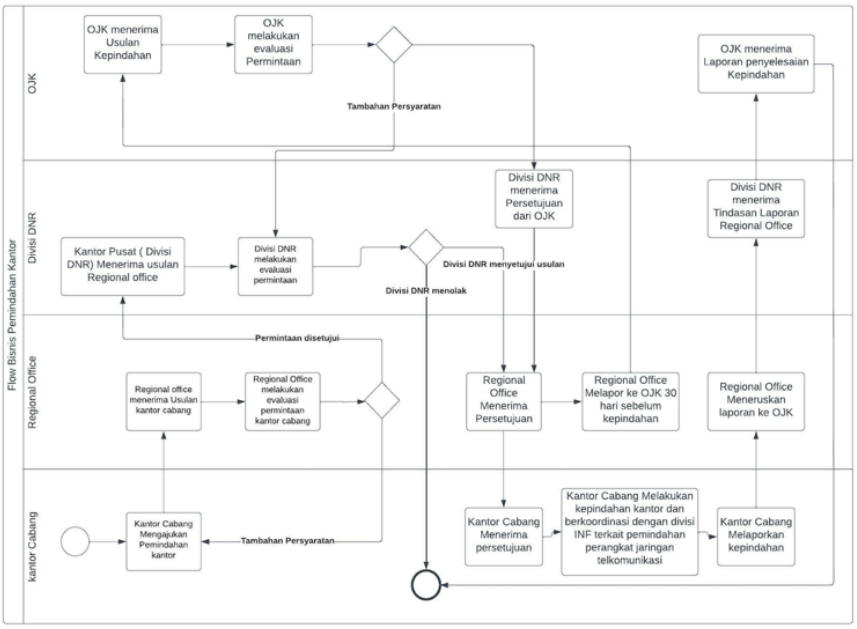

Figure 4 Business process for branch office relocation

1. PT Bank ABC Branch Office will apply for office relocation where this move can be caused by several things including:
   - Capture better business potential in other locations to create ease of service, and access and increase productivity.
   - Orders from the government as a shareholder to maximize banking services
   - The lease period expires and the cost of renewing the new lease is higher than the business potential in the old location
   - Force major (earthquake, fire, etc.)
   - No profit is taken from current office condition for the last 3 years

   The PT Bank ABC branch office will apply to the PT BANK ABC Regional office where the regional office will evaluate the request.
2. The regional office receives requests and evaluates requests thoroughly regarding the criteria for moving and coordinates with the target branch regarding the proposed move and the causes of the move and continues the recommendation of moving to the head office (DNR Division)
3. The DNR Division receives a request letter from the branch office and a recommendation for approval from the regional office and evaluates the proposed move including an evaluation of the rental fee, if the rental fee exceeds the regional office's authority, the DNR division will process a permit to the directors for approval DNR division will send to regional office

4. The regional office receives approval from the head office regarding the move and continues the process of reporting the move to the OJK no later than 30 days before the implementation of the office move and instructs the branch office to make announcements to Indonesian language media
5. The branch office received approval from the regional office and OJK carried out the move according to a predetermined schedule and published it to the public through Indonesian language mass media.
6. The branch office carries out the move and reports the move to the regional office where the regional office will forward the report to the OJK with a copy of the DNR Division of PT bank ABC's head office no later than 5 working days after the move is carried out.
   Where the following requirements apply:
   - If the change of address is canceled, it is MANDATORY to submit the cancellation information to OJK no later than the effective date of the change of office address.
   - If the change of office address is canceled, and an announcement has been made through publication media, it is MANDATORY to announce the cancellation no later than the effective date of the change of address.

In addition to offices, to capture business potential and carry out tasks from the government to provide banking services to the public, PT BANK ABC requires the transfer of an ATM Machine to the required location, the relocation of this ATM Machine was initiated by the branch office of PT bank ABC with the following business process flow:

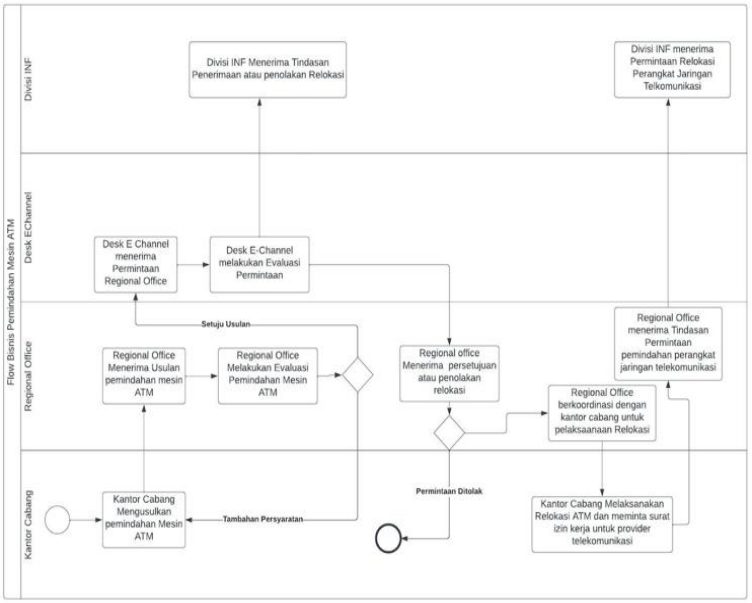

Figure 5 Business process for ATM machine relocation

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1. PT Bank ABC Branch Office will apply for the relocation of an ATM where this move can be caused by several things including:
   - Capture better business potential in other locations to create ease of service, and access and increase productivity.
   - Orders from the government as a shareholder to maximize banking services
   - The lease period expires and the cost of renewing the new lease is higher than the business potential in the old location
   - Force major (earthquake, fire, etc.)

   PT Bank ABC branch office will apply to the PT BANK ABC Regional office where the regional office will evaluate the request.
2. The regional office receives requests and evaluates requests thoroughly regarding the criteria for moving and coordinates with the target branch regarding the proposed move and the causes of the move and continues the recommendation for moving to the head office (E-Channel Desk)
3. The E-Channel desk receives a request letter from the branch office and a recommendation for approval from the regional office and evaluates the proposed relocation including evaluating the rental fee, business potential, and security at the location. If approval has been obtained, the e-channel desk will send a letter of approval for the transfer to the regional office. ATM
4. The regional office receives approval from the head office regarding the move and forwards it to the branch office,
5. The branch office will send a request for the transfer of communication network equipment to the INF division based on approval from the E channel Desk
6. The IT and Infrastructure Division will issue a Work Permit (SIK) to the telecommunications network provider for the implementation of the transfer of network equipment.
7. The branch office will carry out the relocation of the ATM according to the agreed schedule.

For the business process of relocation of telecommunications network equipment, because this business process will be improved, will be discussed in detail in the discussion of the next sub-chapter.

3.2 Understanding The Process

This stage is the second stage in BPI, at this stage an understanding of all dimensions of the ongoing business process is carried out. Understanding business processes is done by defining business processes, creating business process models, and analyzing process time using the Business Process Modeling Notation (BPMN) tools. These tools are used to provide an easy understanding of notation in modeling business processes [15]. The business process modeling carried out

focuses on the main business processes, namely the relocation and repositioning of communication network devices. This business process was chosen because it is considered to represent a business process that needs to be improved. Based on interviews conducted, the process that occurs in the relocation and repositioning of communication network equipment to support the business process of moving offices / ATMs begins with activities at branch offices as follows:

1. After obtaining permission from the DNR division / E-channel desk, the IT officer at the branch office will identify the device to be moved by completing the required technical data such as IP address, provider name, branch code, origin address, and destination address, and then submit a letter to the regional office with approval through branch office management submitted through a digital office application (DIO) with a layered approval mechanism by the provisions of PT Bank ABC as shown below where if there is a revision of the request letter, the letter will be returned to the IT officer as the document maker and officer IT revises the letter made
2. The letter that has been approved by the branch manager of PT Bank ABC is addressed to the regional office where the letter will be distributed from the regional office head to the regional office operations head then to the e-channel dept head then to the e-channel section head and the request will be evaluated and then a letter is made back to the head office with approval through the regional management office with layered approval in the DIO application by the provisions of PT Bank ABC as shown below where if there is a revision of the request letter, the letter will be returned to the officer at the regional office as the document maker and the Regional Officer office revises the letter made
3. A letter from the Regional Office will be received by the INF division at the head office then will be disposed of to the dept head network service operation then will be dispositioned to the NCI team leader and by the NCI team leader will be dispositioned to the admin team where the admin team will verify and coordinate related requests to regional offices, branch offices, and providers.
4. After verification is carried out by the NCI Team, a work permit (SIK) will be issued to the provider via a digital office application, all required technical parameters will be prepared and filled in on the prepared form such as the origin address, destination address, provider name where the draft This SIK will be evaluated by the team leader and digitally signed by the dept head network service operation, with layered approval in the DIO application by PT Bank ABC regulations as shown below where if there is a revision of the request letter, the letter will be returned to the administrative officer in the NCI team as the document maker and the NCI Team member will revise the letter made.

5. The NCI admin team periodically downloads the SIK that has been approved by the NSO dept head and then sends it to the provider via email
6. The NCI team member records the relocation & reposition register on a google sheet and then conducts weekly meetings with the provider to track the completion of the work carried out by the provider.
7. Providers receive SIK from emails sent by NCI team members and then do the task, NCI team will do weekly meetings for all providers to update their work to the NCI team
8. The SIK issued by the NSO dept is also suppressed to the branch office so that the branch office knows that their request has been followed up by the head office so that the branch office will coordinate with the technical team from the communication network provider in the field for the relocation/repositioning of communication network equipment at the location requested by the branch office.
9. From weekly monitoring meetings held at the head office by the NCI team, if there are licensing issues or costs that arise outside the scope of work of the provider, the NCI team will issue a verification service note to regional and branch offices that send requests for relocation/repositioning of network equipment and ask to resolve the issues that arise
10. If the problem has been resolved and the SIK validity period is still there, the branch IT officer can directly coordinate with the provider to complete the work, but if the SIK has expired, the branch office will return to the head office regarding update issues that arise, and the business process will return to the point where new SIK will be issued.

The complete Relocation and Repositioning Business Process Modeling can be described as shown in figure 5. The relocation and repositioning business model were obtained from the results of interviews and direct observations and redefined with a description of the process as follows:

From the business process above, we can see that there are 4 actors involved in the relocation and repositioning business process, the 4 actors are:

- PT Bank ABC branch office: This actor is responsible for operations and business with a scope of work area at the district level where currently there are 600 branch offices spread throughout Indonesia, 1 branch office in New York, 1 branch office in Timor Leste, 1 office branch in Singapore, 1 branch office in Taiwan and 1 branch office in Hongkong, this branch office oversees 6000 unit offices spread to sub-district and village levels throughout Indonesia, branch offices are the first to propose the transfer of the communication network needed to support business in the branch with several business considerations including a quiet ATM location, high crime rate and business cooperation for employee payroll.

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- PT Bank ABC Regional Office: This actor is responsible for business operations and scope of work areas at the provincial level and sometimes several provinces are managed under 1 regional office so that several branch offices will be under the command of 1 regional office, currently PT Bank ABC has 20 Regional Offices spread throughout Indonesia
- PT Bank ABC Head Office: This actor is responsible for the business and operations of PT Bank ABC, under which there are 33 divisions in charge of operations and business. and data center PT Bank ABC.
- PT Bank ABC Network service Provider: This actor is a vendor that provides managed services for PT bank ABC's Communication network equipment including PT Telkom Indonesia, PT Satkomindo Mediyasa, PT LintasArtha, PT Tangara Mitrakom.

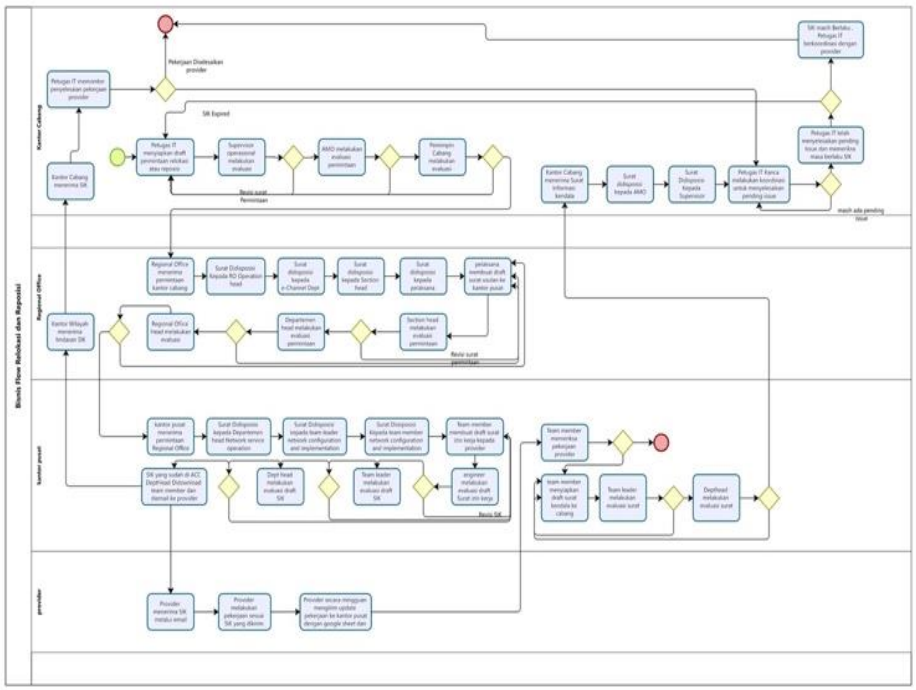

Figure 6 current network relocation business process (as is)

Furthermore, Business Process Evaluation is carried out by identifying problems and analyzing activities, the goal is to find out the shortcomings in the ongoing business processes. From the business model that has been made above, it can be seen the problems that have the potential to disrupt the relocation and repositioning business processes:

1. Business processes are carried out with several platforms/applications, long bureaucracy is also the main obstacle where to issue SIK requires a long

approval from PT Bank ABC Branch level to PT Bank ABC regional office, PT Bank ABC head office and Communication Network service providers that being used by PT Bank ABC.

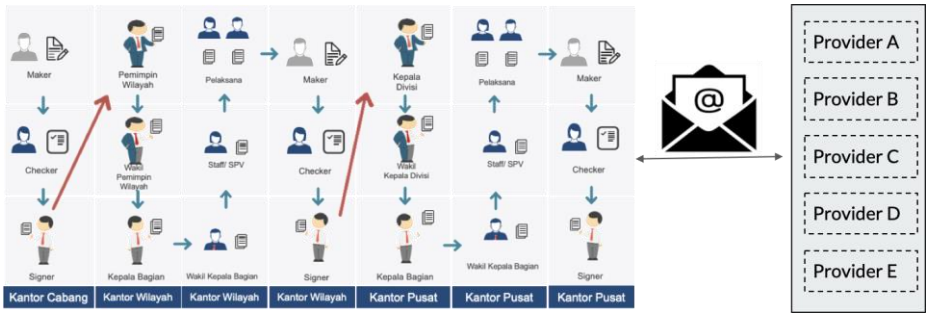

Figure 7 Long letter business flow

2. In addition to the length of approval for the disposition of letters from the head of the work unit to the executor, it also takes a long time.
3. Work Permit issued by the INF division in the form of a letter and then downloaded and sent via email to the provider and recorded manually on a google sheet. Although currently progress monitoring has been carried out in weekly meetings between the INF division NCI team and providers, this is felt to be less than optimal because many processes are carried out manually.
4. There is no single dashboard that monitors the progress of work from providers that is visible from the point of view of branch offices and regional offices, this is because the communication line from the branch office of PT Bank ABC to the regional office and then to the head office uses a correspondence application that is not designed to have visibility into the progress of a request.

An analysis of the activities in each business process is carried out where each of these activities has different characteristics, namely:

1. Real value added (RVA): Aims to find out the main activities that generate added value directly to consumer needs where in the business process of relocating and repositioning communication network equipment there are 7 processes that have value as real value added.
2. Business Value added (BVA): Supporting activities that can generate added value or reduce added value to consumer needs where in the business process of relocating and repositioning communication network equipment there are 6 processes that have value as business value added.
3. Non-Value Added (NVA): Activities that do not generate added value to consumer needs where in the business process of relocating and repositioning communication network equipment there are 20 processes that have value as non-value added.

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The detailed analysis of each of these activities is described in the table below where each of these activities has a different processing time, the table below describes the estimated processing time of each business activity in the relocation and repositioning process of PT bank ABC's telecommunications network equipment.

Table 2 activity analysis of Relocation and Repositioning of Communication Network Equipment business process (As is)

Activity	Description	Actor	Time	Activity analysis
Submission of drafts and completeness of data	Branch office IT officers collect data for relocation or repositioning with reference to Work Unit Data	Branch office	2 Day	RVA
Operations supervisor evaluates requests via digital office applications	Branch office submits Relocation or Reposition Application	Branch office	15 minutes	BVA
Operational manager assistant evaluates requests via digital office applications	Branch office submits Relocation or Reposition Application	Branch Office	15 minutes	NVA
Branch managers evaluate requests via digital office applications	Branch office submits Relocation or Reposition Application	Branch office	15 minutes	NVA
Regional office accepts proposals from branch offices via digital office applications	Regional office receives proposals from branch offices	Regional office	15 minutes	NVA
Disposition to regional office operations head	Disposition of letters from regional office leaders to regional office operations heads via digital office applications	Regional office	15 minutes	NVA
Disposition to regional office e-channel dept head	Disposition of letters from regional office operations head to regional office e-channel dept head	Regional office	15 minutes	NVA
Disposition to regional office e-channel section head	Disposition of letters from the regional office e-channel section head to the regional head implementor	Regional office	15 minutes	NVA
The regional office e-channel implementer makes a proposal to the head office	The regional office e-channel implementer makes a proposal to the head office by coordinating with the proposing branch office	Regional office	1 day	RVA
Section head evaluates the proposed draft through the digital office application	Regional office evaluates the proposed draft	Regional office	15 minutes	BVA

Activity	Description	Actor	Time	Activity analysis
The head department evaluates the proposed draft through the digital office application	Regional office evaluates the proposed draft	Regional office	15 minutes	NVA
Regional office operations head evaluates the proposed draft through the digital office application	Regional office evaluates the proposed draft	Regional office	15 minutes	BVA
The head office receives a request for a proposal letter from the regional office	Head office accepts proposals from regional offices	Head office	15 minutes	NVA
Disposition to the department head network service operations	Disposition of letters from the INF division leader to the network service operation head department through the digital office application	Head office	15 minutes	NVA
Disposition to the NCI team leader	Disposition of letters from the Dept. head of network and service operations to the NCI team leader through the digital office application	Head office	15 minutes	NVA
Disposition to team members NCI function	Disposition of letters from the NCI function team leader to the NCI function team members through the digital office application	Head office	15 minutes	NVA
Team members draft a work permit for the provider	Team members coordinate and check requests and then draft a work permit through the digital office application	Head office	1 day	RVA
Engineer evaluates work permit through digital office application	The NCI function engineer checks data on SIK related to IP, old and new locations, technical data details and providers	Head office	15 minutes	NVA
The team leader evaluates the work permit through the digital office application	INF Division at Head office evaluates SIK requests	Head office	15 minutes	NVA
Dept head network service operation evaluates work permit through digital office application	INF Division at Head office evaluates SIK requests	Head office	15 minutes	NVA
Team members download the SIK which has been approved by the Dept. Head of network service operations, email the SIK and then record it on the google sheet	Team members update the SIK register on the google sheet	Head office	15 minutes	RVA
Provider receives SIK from PT Bank ABC head office via email	The provider receives SIK from PT bank ABC and then creates a work order internally	Providers	15 minutes	RVA
The provider coordinates with branch IT officers with the issued SIK and then executes the work	Provider executes SIK and performs work	Providers	3 days	RVA
The providers update the work weekly to the NCI team members	The providers update the report to the NCI team members regarding which SIK has been done and which ones are experiencing problems	Providers	30 minutes	BVA

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Activity	Description	Actor	Time	Activity analysis
Team members check the provider's work	Team members carry out weekly monitoring activities based on incoming written reports and the results of the minute of meetings held with the provider, if the work is complete then the process is complete but if problems are found, the team member will prepare a letter to the branch concerned	Head office	1 Jam	RVA
Team members prepare letters to branch offices via digital office applications	The team member will make a notification letter to the related branch office regarding the problems that occur related to the SIK request from the branch	Head office	1 day	RVA
The team leader evaluates the letter through the digital office application	The team leader will check the letter to the branch regarding problems that occur, both technical and non-technical	Head office	15 minutes	BVA
Dept. head network service operation evaluates letters through digital office applications	The NSO dept head evaluates letters to branch offices	Head office	15 minutes	NVA
Branch offices receive letters regarding problems through the digital office application	Branch offices accept technical/non-technical constraints on the SIK that has been issued by the head office	Branch Office	15 minutes	NVA
Disposition letter to operational assistant manager (AMO) via digital office application	The branch manager distributed letters from the head office to the branch office AMO	Head office	15 minutes	NVA
Disposition letter to operational supervisor via digital office application by AMO	AMO conducts the disposition of letters from the head office to the operational supervisor	Branch office	15 minutes	NVA
IT officers coordinate to resolve issues	Operational supervisor assigns branch office IT officers to resolve pending issues (technical and non-technical)	Branch office	2 days	RVA
IT officer resolves pending issue and checks SIK condition	Issues that arise have been resolved, the IT officer checks the validity period of the SIK, if the SIK is no longer valid then the IT officer returns a request for SIK to the head office through the regional office	Branch office	15 minutes	RVA

From the results of the Business Process Analysis, it was found that 33 activities were running which were obtained from the results of interviews and observations with the most optimum time that could be obtained from each process, the next stage we could streamline using the tools provided by BPI.

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3.3 StreamLining

In this phase, process simplification is carried out with the aim of improving the efficiency, effectiveness, and adaptability of business processes. Streamlining is the initialization of business process changes to create a new, simpler process with the achievement of the same goal BPI provides 12 fundamental tools for business process improvement (Harrington, 1991) The table below shows the streamlining process carried out for each activity in the old business process, each business process is evaluated and discussed with stakeholders where the main purpose of this evaluation is to get the activity that has the greatest impact on consumer needs with the smallest effort.

Table 3 Streamlining activity for old business process (as is)

xa	Streamlining type	Remark
Submission of drafts and completeness of data	*Upgrading*	Data collection is done online and utilizes the big data network that is already owned in the INMS application, branch IT officers only need to attach an approval letter from the DNR / eChannel Desk division then fill in the new address for device transfer on the INMS application portal
Operations supervisor evaluates requests via digital office applications	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional office e-mail menu. channel section head on the INMS application
Operational manager assistant evaluates requests via digital office applications	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional office e-mail menu. channel section head on the INMS application
Branch managers evaluate requests via digital office applications	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional office e-mail menu. channel section head on the INMS application
Regional office accepts proposals from branch offices via digital office applications	*Upgrading*	A request for a relocation of an ATM or office communication network device will appear as a notification on the INMS application portal where this notification menu will appear on the e-channel head section menu.
Disposition to regional office operations head	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head on the INMS application

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xa	Streamlining type	Remark
Disposition to regional office e-channel dept head	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head on the INMS application
Disposition to regional office e-channel section head	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head on the INMS application
The regional office e-channel implementer makes a proposal to the head office	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head on the INMS application
Section head evaluates the proposed draft through the digital office application	Upgrading	Regional office e-channel section head will receive notification regarding requests for relocation of communication network equipment to support office/ATM machine relocation, all technical and non-technical data are evaluated and then given approval
The head department evaluates the proposed draft through the digital office application	Upgrading	Regional office e-channel Dept head will receive notification related to request for relocation of communication network equipment to support office/ATM machine relocation, all technical and non-technical data are evaluated and then given approval, if dept-head refuses, the draft letter will be returned to branch IT officer
Regional office operations head evaluates the proposed draft through the digital office application	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional office e-mail menu. channel section head on the INMS application and approved up to the dept head level only
The head office receives a request for a proposal letter from the regional office	*Upgrading*	A request for relocation of ATM or office communication network devices will appear as a notification on the INMS application portal where this notification menu will appear on the NCI team member menu
Disposition to the department head network service operations	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu
Disposition to the NCI team leader	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on

xa	Streamlining type	Remark
		the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu
Disposition to team members NCI function	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu
Team members draft a work permit for the provider	*Upgrading*	A request for a relocation of an ATM or office communication network device will appear as a notification on the INMS application portal where this notification menu will appear on the NCI team member menu and what the NCI team needs to do is only verify the request, fill in the data and confirm to the provider considering the EOS officer every time the provider is at the head office
Engineer evaluates work permit through digital office application	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu and team members only verify the request and then approve the existing request to become a ticket (SIK) in the provider menu
The team leader evaluates the work permit through the digital office application	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu and team members only verify the request and then approve the existing request to become a ticket (SIK) in the provider menu
Dept head network service operation evaluates work permit through digital office application	*Bureaucracy Elimination*	Issuance of proposals is no longer a letter in the Digital office application, but only in the form of a draft on the INMS application portal which will later be executed as a SIK on the INMS application where submissions made by branch office IT officers will immediately appear in the regional office on the regional e-office menu. channel section head in the INMS application and is approved only to the dept head level, where if approval has been given a notification will appear on the NCI team member menu and team members only verify the request and then approve the existing request to become a ticket (SIK) in the provider menu
Team members download the SIK which has been approved by the	*Upgrading*	Every SIK issued immediately appears in the provider menu, where the provider must close the SIK ticket every time it completes its work, the ticket will be automatically closed by

xa	Streamlining type	Remark
Dept. Head of network service operations, email the SIK and then record it on the google sheet		the system if it has passed the approved SLA and will be a record to the provider where the ticket status is monitored by the NCI team at the PT Bank ABC head office
Provider receives SIK from PT Bank ABC head office via email	*Upgrading*	Every SIK issued immediately appears in the provider menu, where the provider must close the SIK ticket every time it completes its work, the ticket will be automatically closed by the system if it has passed the approved SLA and will be a record to the provider where the ticket status is monitored by the NCI team at the PT Bank ABC head office.
The provider coordinates with branch IT officers with the issued SIK and then executes the work	*Upgrading*	The provider coordinates with the SIK ticket on the mobile application brought by the technician in the field, does the work and then updates the ticket status in the field
The providers update the work weekly to the NCI team members	*Upgrading*	The status of each SIK ticket can be seen on the INMS application monitoring portal where each ticket can only be disclosed after the branch IT officer verifies the provider's work.
Team members check the provider's work	*Upgrading*	The status of each SIK ticket can be seen on the inms application monitoring portal
Team members prepare letters to branch offices via digital office applications	*Upgrading*	The status of each SIK ticket can be seen on the inms application monitoring portal and every problem is updated regularly
The team leader evaluates the letter through the digital office application	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal
Dept. head network service operation evaluates letters through digital office applications	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal
Branch offices receive letters regarding problems through the digital office application	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal
Disposition letter to operational assistant manager (AMO) via digital office application	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal
Disposition letter to operational supervisor via digital office application by AMO	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal
IT officers coordinate to resolve issues	*Upgrading*	The status of each SIK ticket can be seen on the InmS application monitoring portal where each ticket can only be disclosed after the branch IT officer verifies the provider's work.
IT officer resolves pending issue and checks SIK condition	*Bureaucracy Elimination*	The DIO application is no longer needed considering that all flows with the new business process have been run in INMS Portal

Using streamlining tools provided by BPI we can streamlining and for existing business processes we use Bureaucracy Elimination which is a technique to eliminate unnecessary administrative work, licensing, and paperwork as well as

upgrading to streamline the use of equipment and work environment in order to improve performance so that we get a new business process that is more effective and efficient where from the results of streaming on the old business process we get 20 activities that can be streamlined using the Bureaucracy Elimination tool and 13 activities can be streamed using the Upgrading tool.

3.4 Measurement and Control

New proposal process will be proposed, where this new process is an improvement from the weaknesses of the old business process, process improvements are carried out by replacing or eliminating processes that are considered inefficient so that they become new, more efficient business processes.

Table 4 Business process improvement

Added / changed / removed activities in the business process Recommendations	Actor	Recommended business process
Submission of drafts and completeness of data. (changed) Operations supervisor evaluates requests via digital office applications Operational manager assistant evaluates requests via digital office applications(removed) Branch managers evaluate requests via digital office applications(removed)	Branch office	Login to the application, select the relocation or reposition menu, enter the required parameters, submit a relocation or repositioning proposal
Regional office accepts proposals from branch offices via digital office applications(removed) Disposition to regional office operations head (removed) Disposition to regional office e-channel dept head(removed) Disposition to regional office e-channel section head(removed) The regional office e-channel implementer makes a proposal to the head office(removed) Section head evaluates the proposed draft through the digital office application(changed) The head department evaluates the proposed draft through the digital office application(changed) Regional office operations head evaluates the proposed draft through the digital office application(removed)	Regional office	Login to the application, check notifications of proposed relocation or repositioning from branch offices, perform parameter checks and approval

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Added / changed / removed activities in the business process Recommendations	Actor	Recommended business process
The head office receives a request for a proposal letter from the regional office(changed)		
Disposition to the department head network service operations(removed) Disposition to the NCI team leader(removed) Disposition to team members NCI function (removed)	Head office	Team member of the NCI function Login to the application, check the notification of the proposed relocation or reposition from the regional office and then check the parameters and approval
Team members draft a work permit for the provider (changed) Engineer evaluates work permit through digital office application(removed) The team leader evaluates the work permit through the digital office application(removed)		
Dept head network service operation evaluates work permit through digital office application(removed)		
Team members download the SIK which has been approved by the Dept. Head of network service operations, email the SIK and then record it on the google sheet (changed)	Head Office	The approved SIK will appear in the provider menu
Provider receives SIK from PT Bank ABC head office via email (changed) The provider coordinates with branch IT officers with the issued SIK and then executes the work (changed)	Provider	The provider logs into the application, checks for an SIK ticket, performs relocation or repositioning work, and then updates the work status on the INMS application
The providers update the work weekly to the NCI team members (changed)		
Team members check the provider's work (changed)		
Team members prepare letters to branch offices via digital office applications(removed)		The status of each SIK ticket can be seen on the inms application monitoring portal and every problem is updated regularly
The team leader evaluates the letter through the digital office application(removed)	Head office	
Dept. head network service operation evaluates letters through digital office applications (removed)		
Branch offices receive letters regarding problems through the digital office application (removed) Disposition letter to operational assistant manager (AMO) via digital office application (removed)	Branch office	The branch office IT officer only needs to look at the SIK completion menu and make periodic updates on the job confirmation menu

Added / changed / removed activities in the business process Recommendations	Actor	Recommended business process
Disposition letter to operational supervisor via digital office application by AMO (removed)		
IT officers coordinate to resolve issues (changed)	Branch office	The branch office IT officer logs into the application and sees the SIK completion menu and performs periodic updates on the job confirmation menu

The new business process is implemented in the following way:

1. The branch office IT officer logs in to the portal or mobile application then selects the relocation / reposition menu where detailed parameters are selected from the in ms database, and several parameter options are input such as:
   - Destination addresses for device relocation
   - Planned moving date

   After the required data is complete, the data is submitted to the application. In this new business process, approval is directly at the regional office, thereby cutting the approval time that was previously done in the digital office application.
2. The Regional Office receives notifications on the portal or mobile application regarding requests for transfer of communication network devices for offices / ATMs and then checks parameters, if it feels something is missing, the Regional office can refuse through the menu section head e-channel and branch IT complete, verify at the regional office, it is only carried out by the head of the e-channel department so that it cuts the bureaucracy in the regional office, after checking the request is deemed sufficient, the head of the department approves the request
3. The head office receives a request notification from the portal or mobile application and then verifies the request and completes the parameters if needed, if it is deemed complete then approval will be carried out and a SIK will automatically be created which will be sent to each telecommunications service provider
4. Telecommunication service providers receive request notifications through portals or mobile applications and carry out work in the field, if there are problems the provider can immediately update the status of problems on the mobile / portal application which is directly verified by branch IT officers. When the work is complete, the provider can immediately close the job and then the branch IT officer can rate the provider's work.
5. All issued SIK can be monitored live by all involved entities. How many SIK are still open, closed or pending due to licensing and other factors.

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By modeling the new business process can be described as shown in figure 8. Where each of these activities has a different processing time, the table below describes the estimated processing time of each activity related to the relocation and repositioning of PT Bank ABC's telecommunications network equipment on the new business process

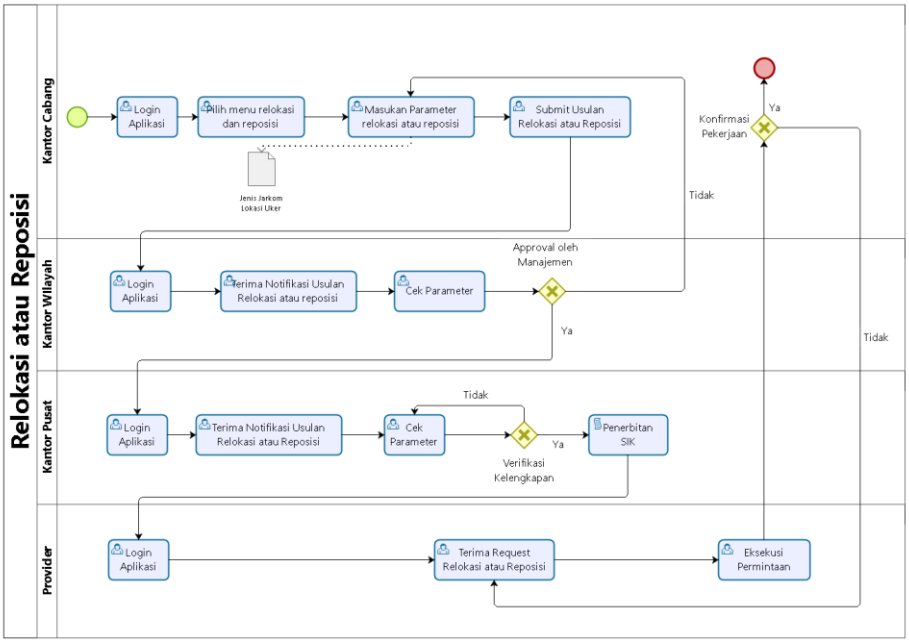

Figure 8 Recommended Business Process

Table 5 new business process processing time (To be)

Activities	Description	Actor	Time
Application Login	IT Officer in branch office login to application	Branch Office	5 minutes
Choose the relocation or reposition menu	Branch offices choose relocation or reposition menu	Branch)ffice	5 minutes
Enter relocation or reposition parameters	Branch offices enter relocation or repositioning parameters	Branch Office	10 minutes
Submit a relocation or repositioning proposal	Branch offices submit proposals for relocation or repositioning	Branch Office	5 minutes
Application Login	Section head in regional office login to application	Regional office	5 minutes

Activities	Description	Actor	Time
Application Login	IT Officer in branch office login to application	Branch Office	5 minutes
Receive notification of relocation or repositioning proposals	Regional offices receive notifications of proposed relocation or repositioning in the application	Regional office	5 minutes
Cek Parameter	Regional office Checking parameters before being approved and escalating to head office	Regional office	15 minutes
Application Login	Head office NCI team member login to application	Head office	5 minutes
Receive notification of relocation or repositioning proposals	Head office receive notifications of proposed relocation or repositioning in the application	Head office	5 minutes
Parameter Check	Head office checks parameters before making SIK	Head office	15 minutes
SIK Publishing	Head office issues SIK	Head office	5 minutes
Application Login	Provider logins the application	Providers	5 minutes
Accept Relocation or Reposition Requests	Provider accepts Relocation or Reposition requests in the application	Providers	15 minutes
Request Execution	Provider executes SIK and performs work	Providers	3 days

All new Business Processes will be run in 1 application. The SIK request, the issuance of the SIK and its monitoring will be developed in the application so that only 1 application is needed to meet the needs of relocation and repositioning of communication network equipment. This new process business has 14 activities compared to 33 activities in the old process business

3.5 Continues Improvement

Process simulation is carried out to the level of time analysis which is carried out on the process before the repair (As-Is) and the process after the repair (To-Be) to be able to see the comparison of the time required using the bizzagi modeler software [16], [17].

Table 6 Existing Process Simulation

Relocation or Reposition (As-Is)	
Instance Started	140
Instance Completed	140
Minimal Time	10 Days 2 Hour 45 Minutes
Maximal Time	10 Days 7 Hour 15 Minutes
Average Time	10 Days 3 Hour 38 Minutes 45 Second

In the Existing process with a duration of 10 Days, 140 Relocation or Repositioning processes can be completed, the minimum time required to carry out the relocation or repositioning process is 10 days 2 hours 45 minutes, and the maximum time required to carry out the data relocation or repositioning process is 10 days 7 hours 15 minutes, and the average time needed to carry out the

relocation or repositioning process is 10 days 3 hours 38 minutes 45 seconds for 33 activities in the old business process

Table 7 Recommended Process Simulation

Relocation or Reposition (To-Be)	
Instance Started	140
Instance Completed	140
Minimal Time	3 Days 1 Hour 40 Minutes
Maximal Time	3 Days 5 Hours 55 Minute
Average Time	3 Days 2 hours 42 Minutes 30 Second

In the Recommendation process with a duration of 3 days, 140 relocation or repositioning processes can be completed, the minimum time required to carry out the relocation or repositioning process is 3 days 1 hour 40 minutes, and the maximum time required to carry out the data relocation or repositioning process is 3 days 5 hours 55 minutes, and the average time needed to carry out the relocation or repositioning process is 3 days 2 hours 42 minutes 30 seconds for 14 activities in the new business process.

4. CONCLUSION

Based on the results of the research that has been presented in the previous discussion regarding the process of relocation and repositioning, we can draw several conclusions as follows:

The new Business Process was obtained based on the results of the process evaluation and assisted with process simplification by using 12 streamlining tools from BPI. The types of streamlining used in the Relocation or Repositioning process are Upgrading in 13 activities and Bureaucracy Elimination in 20 other activities, resulting in a recommendation process.

From the simulation results, comparisons are made between the existing process and the recommendation process. The results of the simulation show that the processing time required to run the process is shorter in the recommended business process compared to the existing business process, With the improvements provided from the current process to a proposed business process, it is hoped that it will improve the quality of relocation and repositioning services to minimize downtime for work units and ATMs, which in turn will increase the reputation and fee-based income.

Further research can use the evaluation results in the business process as a reference in the preparation of analysis and development of software applications that can be used at PT Bank ABC and further research can develop an analysis that uses cost details that are not available on this research.

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