MODELING AND ANALYSIS OF BUSINESS PROCESSES IN THE ORGANIZATION'S SOCIAL SERVICE USING SIMULATION THROUGH BUSINESS PROCESS MODEL AND NOTATION

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Abstract

Background: Business processes are the main approach to analysing, designing and understanding the operations of an organization. In this study aims to assist institutions or companies understand by all stakeholders well the dynamics of their business processes since has a positive impact on productivity, performance and organization. **Method:** This study conduct simulation by utilizing Business Process and Notation (BPMN) on the Business Process Management (BPM) approach to analyzing, designing, and understanding the operations of Social Organizations. The planning stage involves by determining business processes and plan for the implementation of recommendations for improving business processes. It will reflect the sequence of activities and focus on processes, actions, and related activities. This simulation model plan is a guide for organizations in planning their business process modelling. Through simulation, this model helps organizations optimize their business processes. This research contributes to improve the efficiency and performance of organizations through a better understanding of their business processes. Business process modelling with a BPM approach can be an effective instrument for improving organizational performance and efficiency. Optimized business processes through analysis and planning can result in significant productivity improvements. **Result:** The resulting simulation model provides guidance for organizations in understanding, redesigning, and implementing improvements to their business processes. Thus, the use of this approach is expected to have a substantial positive impact on various aspects of organizational operations, increase adaptability to change, and create sustainable added value. It can be concluded that the role that has great potential in the smooth running of the business process is the Volunteer Coordinator with a utilization value of 88.72% and the role with the least potential in this process is the branch head with a utilization value of 71.42%. So that other roles are needed to assist the program submission process in addition to program staff and administrative staff. **Conclusion:** Our results show that the simulation results carried out by BPMN were successful in modeling volunteer program applications that can help communication between human resources. It would be useful to further help on other models with multiple models while improving resource performance.

Keywords: Business Process and Notation (BPMN), Business Process Management (BPM), Volunteer Coordinator, Human Resources.

1. INTRODUCTION

Business processes are activities or tasks carried out by humans or tools in an organization in a specific "*Sequence*" of products and services for customers. According to permenpan No. 19 of 2018, explains that the Business process map is a diagram that describes effective and efficient working relationships between organizational units to produce performance in accordance with the objectives of the organization's establishment in order to produce value-added outputs for stakeholders [1]. Business processes involve various interested parties and require resources to achieve the vision and mission of an organization. Proper management of business processes can improve organizational performance. Although many organizations have realized the importance of managing business processes efficiently and improving or improving business processes to the level of customer satisfaction. This is because each business process has its own unique characteristics and the change strategy is highly dependent on the environment and the ability of the organization itself to change.

Human resources are the key to determining the success of achieving the organization's goals. Human resources have the potential in assets and functions as capital in the organization that can be used to achieve organizational goals realizing real potential physically, so the human factor or employees have a very important role in achieving its goals. One of them is the role of volunteers who are willing to help without expecting rewards. Humanitarian organizations are active in raising funds through various humanitarian campaigns, recruiting volunteers from various backgrounds, creating networks of cooperation with private companies and government agencies [2]. To realize what is the purpose of the organization requires good cooperation between superiors and subordinates, between one part and another, between one employee and another employee and between one employee and another employee outside the company, this is often referred to as communication and coordination [3]. To be able to encourage volunteers to realize that their performance is related to service to the community, organizational management must be able to build a conducive work atmosphere by providing appropriate support for volunteers in realizing the motivation that arises in volunteers, fostering empathy and acting socially with the aim of improving the welfare of others selflessly [4].

To achieve organizational goals, there are many problems faced, one of which is caused by ineffective communication. This problem occurs because of the undefined *Standard Operation Procedure* (SOP) [5]. Which also results in the order of the course current business processes are less detailed and run improperly and the order of a process requires actors who are in accordance with their duties.

Optimal business processes have an impact on increasing productivity, improving performance, and increasing profits for the organization. Business processes can run optimally, so they must be able to be translated and understood easily by organizational stakeholders. To realize the optimal business process, a business process modeling analysis is needed. This research is to create a business process modeling planning model based on business process management with a social organization, namely Yatim Mandiri Volunteers. In the organization there are many findings to be able to solve the obstacles contained in the organization. The GAP obtained is the communication gap between human resources (HR) and the SOP has not been defined. So it is needed to help the organization resolve the communication gap between human resources and the exposure of social service services. Make it easy for the community to communicate with the organization regarding social service services.

Based on these problems, this research reviews the existing problems by modeling business processes. The author uses BPMN (*Business Process Model and Notation*) to model the ongoing

business process. Some business improvements include methods of scope identification (35%), analysis (85%), modeling (100%), problem identification (30%) and improvement techniques (65%) [6]. Analysis and modeling of business processes are expected to be a consideration for organizations to improve business processes in the future. Thus researchers have modeling to assist organizations in maximizing existing human resources.

2. LITERATURE REVIEW

The framework contains descriptions used in solving problems in this study. The research framework begins by identifying the emergence of communication-related problems due to the absence of business processes running well. These problems include the sequence of the current business process is less detailed and runs improperly and the sequence of a process requires actors who are in accordance with their duties.

Thus, analysis is the processing of data obtained from the results of interviews and then outlined in the value chain. The analysis contains operational guidelines, technical guidelines, and job descriptions for each function related to the business process to be modeled. Analysis of the business process begins with sorting out the main processes and supporting processes. After getting the process that will be recommended with the consideration of the leadership. Business process modeling is carried out using dimensional mapping which contains regulations, applications, data used, and running business processes. Modeling by finding actors and tasks, modeling is done in Bizagi Modeler. After the modeling is deemed appropriate from the previously obtained data, a verification process is carried out and requests approval from all heads of fields and units for the business processes that have been modeled.

Furthermore, the model is harmonized by mapping and synchronizing between business processes at each level in the BPMN hierarchy. This process refers to the harmonization pattern which is divided into 3 namely sequential, hierarchical, and duplication. Sequential is intended so that the business process of one unit with another work unit has a sequential process. Hierarchical to translate between business processes that have sub-processes. While duplication is aimed at several work units in a business process that seems different, it turns out to be the same, so harmonization is needed to maximize each work unit in the running business process. After the harmonization goes as expected, then the simulation process.

The harmonization results that have been made are then simulated to obtain results and conclusions. The results of each work unit are optimized starting from the validation process, analyzing the time and efficiency of each actor involved (resource). Thus it will get a model that has been optimal, and become an organizational consideration to optimize existing human resources.

2.1. Business Process Management

Business Process Management (BPM) is a management approach that focuses on designing, implementing, and monitoring business processes in order to achieve organizational goals more effectively and efficiently. Through BPM, organizations can achieve operational efficiency, increase flexibility, and better respond to market changes, all of which contribute to the long-term success of the organization. Business process as improving existing processes in an organization, some business improvements include the methods of scope identification (35%), analysis (85%), modeling (100%), problem identification (30%) and repair techniques (65%) [6].

By using the business process management (BPM) approach by including the process of identification, discovery, analyze, redesign, implementation, monitoring and control. These stages can be simplified into 3 main key stages, namely modeling the current process, modeling the desired process, and the execution process, as in Figure 2.1 [7].
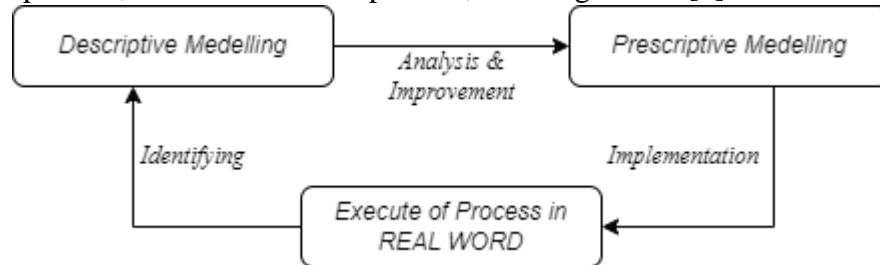

Figure 2.1. BPM [7], [8]

The first stage is done by creating an ongoing business process, to be used as an analysis material to be modeled. The process is then analyzed so that modeling is found that describes the business process and the expected improvement. After that, it is determined as a standardized business process to be implemented in carrying out the vision and mission. In the BPM framework using modeling tools in BPMN. BPMN provides a visual notation that allows a clear representation of the workflow of business processes.

2.1.1. Business Process Modeling Notation (BPMN)

BPMN was created by the Business Process Management Initiative. Currently, the latest version of BPMN is BPMN 2.0 and is managed by the Object Management Group [9]. This Business Process Modeling Notation (BPMN) has a great effect on helping organizations to increase efficiency, reduce costs, and improve service quality through the identification and improvement of weaknesses in business processes can run efficiently and effectively, so they must be translated and understood easily by organizational stakeholders with modeling techniques that represent business processes [10]. Business Process Modeling Notation (BPMN) is a standard used to create graphical representations of business processes. This standard provides a graphical notation that is used to visually describe business processes. By using BPMN, we can create business process diagrams based on flowchart techniques.

These diagrams are well structured to create graphical models that describe business operations, including the activities and flow controls that define the sequence of work. Thus, BPMN provides a clear and consistent way to model and understand business processes [11]. Business Process Modeling Notation (BPMN) is a standard used to model business processes consisting of graphical notations to describe a business process [12]. The model uses BPMN based on levels or sub-processes, so that it is more organized and clearly detailed as the concept of BPMN modeling hierarchy. The concept of hierarchy can be interpreted as grouping and structuring process model elements to improve understanding, analysis, and management. Hierarchical modeling helps in breaking down complex processes into smaller and more understandable parts depicted in Figure 2.2 [7].
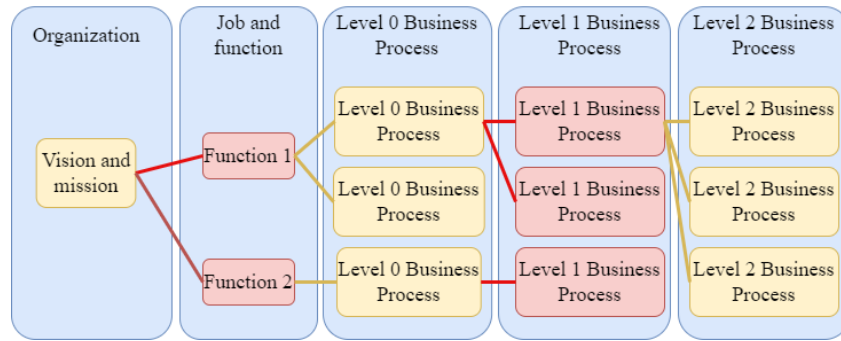
Figure 2.2. BPMN Modeling Hierarchy Concept [7]

In the hierarchy, it is explained that the organization has a vision and mission which is divided into several functions. An efficient and effective organization when its functions run according to their functions. The hierarchy is divided into several business process levels - the levels start from level 0 to the next level according to the needs of the organization. BPMN provides a standard notation that can be widely understood, both by non-technical and technical parties. BPMN notations that can be used to model Incident Management. Notations in BPMN are grouped into four elements, namely Flow Objects, Connectors, Swimlanes, and Artifacts. The BPMN elements are shown in Figure 2.3.
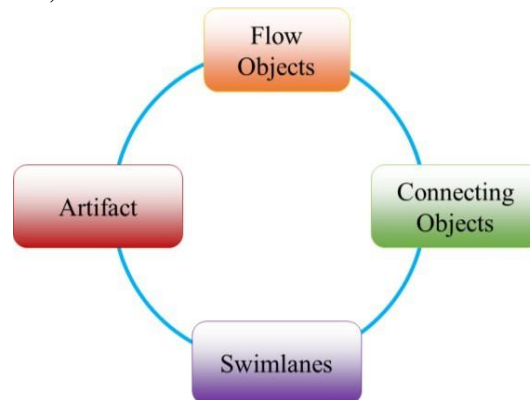

Figure 2.3. BPMN Elements

2.1.1.1. *Flow Objects*

Flow Objects are objects that flow in a process consisting of events, activities, and gateways. Table 2.2. explains the types of flow objects used in this research.

Table 2.2. Flow Object

Element	Process Type
Event	Start
	Intermediate
	End
Activity	Task
	Subprocess
Gateway	Data Based Gateway
	Event Based Gateway

2.1.1.1.1. Event Notation

An event is represented by a circle and is something that "happens" during a business process. Events affect the process flow and usually has a cause (trigger) or an impact (outcome). Event circles with open centers to allow internal markers to distinguish different triggers or outcomes. Table 2.3. describes the event notation used in this research.

Table 2.3. Event Notation

Notation	Function Notation
Start	the beginning of a process. A process must depart from a single start, although it may end at multiple ends.
Intermediate	midway between business processes
End	the end of a process

2.1.1.1.2. Activity Notation

Activity is represented by a rounded rectangle and is a general term for the work that a company performs. Activities can be atomic or nonatomic (compound). The types of activities are: tasks and sub- processes. Subprocesses are distinguished by a small plus sign at the bottom center of the shape. Represents. When there is no need to emphasize information, it is best to use this type of task. Table 2.4. illustrates the task and subprocess notation used in this study.

Table 2.4. Task and subprocess notation

Notation	Function Notation
Task	Single activity (*task*)
Subprocess	A composite activity that represents a collection of tasks.

2.1.1.1.3. Gateway Notation

Gateway notation is used as decision-making modeling. Gateways are represented by the familiar diamond shape and are used to control the divergence and convergence of sequential flows. Thus, it will determine the traditional decisions, as well as the forking, merging, and joining paths. Internal markers will indicate the type of control behavior. Figure 2 illustrates the Gateway Notation used in this study.

Figure 2.4. Gateway notation

2.1.1.2. *Connecting Objects*

Connecting Object is an element that flows in a process and connects flow objects and has 3 types of elements, namely sequence flow, message flow, and association. Table 2.5. describes the Connecting Object Notation used in this research.

Table 2.5. Connecting Object Notation

Notation	Function Notation
Sequence flow	A connector that connects objects that flow within a single process (a pool). A Sequence flow is used to indicate the sequence of activities to be performed in the process.

Message flow	A connector that connects objects that flow between processes (different pools). Used to indicate the flow of messages between two actors that have been prepared to send and receive messages them. In BPMN, two separate Pools in a Collaboration Diagram will represent two participants (e.g. partner entities or partner roles).
Association	Connector that connects flowing objects to artifacts

2.1.1.3. Swimlanes

Swimlanes are a mechanism for organizing and separating the roles or responsibilities of a process, which can be called a grouping of several element models. Swimlines are used to separate and organize activities within elements so as to understand who is responsible for each event. Swinlanes are depicted as lines that separate and group actors (people who interact with the system). BPMN supports swimlanes with two forms of swimlane objects, namely pools that represent participants in a process and lanes, which are sub-sections within a pool and will increase the length of the pool either vertically or horizontally. Lanes are used to organize and categorize activities. Table 2.6. illustrates the notation of Swimlane objects used in this study.

Table 2.6. Swimlane Notation

Notation	Function Notation
Pool	Containers of one process
Lines	Partition of a process, indicating the sub-organization, position, role or person in charge.

2.1.1.4. Artifact

Artifacts are elements used to provide additional information from a process and are divided into 4, namely data objects, data stores, groups, and annotations. Table 2.7. describes the Artifact Notation used in this research.

Table 2.7. Artifact

Notation	Function Notation
Data object	Files and documents used and generated by an activity.
Data store	Systems and applications used and generated by an activity.
Group	Grouping of multiple flowing objects.
annotation	explanation of a flowing object.

2.2.   Bizagi Modeler

Bizagi Modeler is a freeware application to graphically diagram, document and simulate processes in a standard format known as Business Process Modeling Notation (BPMN). The process can be exported to word, PDF, Visio, web or sharepoint for sharing and communicating. In 2.3 it has been explained that BPMN has several elements. However, the Bizagi application has a slightly different notation like BPMN in general, but broadly speaking it has the same notation but can still make it easier for users to recognize these elements. Table 2.8. explanation of notations in the Bizagi Modeler application that are not explained by BPMN elements in general which are in accordance with the Bizagi Modeler application used by the author.

Table 2.8. BPMN on Bizagi Modeler

Element	Name	Type			Notation
Flow object	Event	Start	Intermediate	End	Message, time, conditional, Multiple, parallel multiple, cancel, Escalation, link, multiple, error, Signal, compensate, terminate
	Activity	Task			User task, service task, receive task, sent task, script task, manual task, and business rule task
		Subprocess			Embedded, Reusable, Adhoc
	Gataway	Data based gateway			Exclusive gateway, Inclusive gateway, Parallel gateway, Complex gateway
		Event based gateway			Event-based gateway, Exclusive event-based gateway, Parallel event-based gateway
Connecting object	Sequence flow				
	Message flow				
	Association				
Swimlanes	Pool				
	Lane				
	Milestone				
Artifact	Annotation				
	Group				
	Data object				
	Data store				

The types of start notation contained in the bizagi modeler application include: none start, timer start, message start, signal start, conditional start, parallel multiple start and multiple start. Table 2.9. illustrates the type of start notation.

Table 2.9. Start event notation type

Notation	Function Notation
None start	A marker for the start of a business process. *The start timer* is used when the start of a process occurs on a specific date or cycle time (for example, every Friday).
Message start	When a message comes from a participant and triggers the start of a business process.
Signal start	The start of a business process is triggered by the arrival of a signal that has been broadcast from another process.
Conditional start	The start of a business process when a condition becomes a reality.
Parallel multiple start	A pointer that there are multiple triggers required to start a business process, all triggers must be triggered before the process is executed.
Multiple starts	A business process is initiated because there are several ways to trigger the business process.

The types of intermediate notations contained in the bizagi modeler application include: none event, timer event, message event, signal event, link event, compensate event, escalation event, conditional event, parallel multiple events and multiple events. Table 2.10 illustrates the type of intermediate notation.

Table 2.10. Intermediate event notation type

Notation	Function Notation
None event	Indicates where something happens between the start and end of a process. It will affect the process flow, but will not start or (directly) end the process.
Event timer	Indicates a delay in the process. This event type can be used in sequential flows that show waiting times between activities.
Message event	Indicates that a message can be sent or received. If a process is waiting for a message and it is caught, the process will continue its flow. The message capture event waits for the message to arrive and once the message is received, the process will resume. The event marker in this example will not be filled.
Signal event	To send or receive signals within or across processes. Alternatively, unallocated event markers are allocated to capture messages.
Event link	To connect two parts of a business process and create a looping situation or to avoid long sequence flow lines.
Compensate event	Enables compensation handling in the business process flow.
Escalation event	Indicates escalation through the business process.
Conditional event	A process that is triggered when a condition becomes conditionally true.
Parallel multiple events	A business process for which there are multiple triggers assigned to the event. Unlike the typical multiple intermediate events, all assigned triggers are required for the event to be triggered.
Multiple events	Business processes that have multiple triggers assigned to them. When used to capture a trigger, only one assigned trigger is required and the event marker will not be populated.

The end notation types found in the bizagi modeler application include: none end, terminate end, message end, signal end, compensate end, escalation end, error end, cancel end, and multiple end. Table 2.11 illustrates the end notation types.

Table 2.11. End notation type

Notation	Function Notation
None End	Marks the end of the business process. Terminate End is a marker to immediately end the Process and all its activities.
Terminate End	A sign that all processes and activities are coming to an end.
Message End,	Indicates that the message was sent when the stream has ended.
Signal End	Indicates that the signal is sent when the flow has ended.
Compensate End	The section that handles compensation. If an activity is identified and successfully completed, the activity will be compensated.
Escalation End	Indicates that Escalation is required when the flow ends.
Error End	Indicates that an error can occur in a business process. So that all currently active processes are stopped. The error will be captured by the
Cancel End	Used in the Transaction Sub-Process. This indicates that the Transaction should be canceled and an alternative flow can be performed.
Multiple End	This means that there are many consequences to stopping this flow.

Task notations contained in the bizagi modeler application include: user task, service task, receive task, sent task, script task, manual task, and business rule task. Table 2.12 illustrates the type of task notation.

Table 2.12. Task notation

Notation	Function Notation
User task	Activities that require software assistance.
Service task	Activities are automated and use *services* that connect with other systems, such as *web services.*
Receive task	Activities used to receive messages.
Sent task	Activities used to send messages.
Script task	Activities are automated but not related to other systems, such as sending notification emails.
Manual task	Activities carried out manually.
Business rule task	Analysis, calculation, approval activities that require review of regulations and documents in decision making.

The subprocesses that will be used in this bizagi modeler application include: Embedded, Reusable, and AdHoc. Table 2.13. explains the type of notation in the subprocess.

Table 2.13. Subprocess notation

Notation	Function Notation
Embedded	Additional business processes that do not have pools or lines.
Reusable	Additional business processes that have more than 2 business process actors and use pools and lines.
AdHoc	Additional business processes that do not have a flow, usually contain a detailed list of requirements for the needs of a business process.

Gateway notations found in the bizagi modeler application include: parallel gateway, exclusive gateway, inclusive gateway, event-based gateway, parallel event-based gateway, exclusive event-based gateway, and complex gateway. Table 2.14. describes the type notation for gateways.

Table 2.14. Gateway notation

Notation	Function Notation
Exclusive gateway	Notation select one.
Parallel gateway	Notation of concurrent (parallel) activities at one time.
Inclusive gateway	You can choose one or more notations.
Event-based gateway	Notation select one of the events that occurred.
Parallel event-based gateway	Notation of events that occur simultaneously (parallel) at one time.
Exclusive event-based gateway	Used to create a process where alternative paths are determined by events (various messages or signals) and not by conditional flow.
Complex gateway	Gateway notation to organize the copy of everything.

The notation of connecting objects contained in the bizagi modeler application includes: sequence flow, message flow, and association. Table 2.15. explains the type of notation on connecting objects.

Table 2.15. Notation of connecting objects

Notation	Notation function
Sequence flow	A sequence flow used to show activities in a business process.
Message flow	To show the flow of messages between two entities ready to send and receive them.
Association	To associate information and *artifacts* with flow objects. It also shows the activities that used to compensate for an activity.

The swimlanes notation contained in the bizagi modeler application includes: pool, lane, and milestone. Table 2.16. describes the notation types for swimlanes.

Table 2.16. Notation of swimlanes

Notation	Notation function
Pool	The container of a single business process (containing a sequence flow between activities). A process is fully contained in a *pool*. There is always at least one *pool*.
Lane	Sub-partitions within a business process. *Line* is used to distinguish elements such as *internal roles, positions, departments,* etc. *Line* represents the functional area that may be responsible for the business process.
Milestone	Sub-partitions in a businessprocess. Thiscan indicate different stages during a business process.

Data notations contained in the bizagi modeler application include: data object and data store. Table 2.17 describes the type notation on data.

Table 2.17. Data notation

Notation	Notation function
Data *object*	Provides information on how documents, data, and other objects are used during business processes.
Data *store*	Provide an activity mechanism to retrieve or update stored information that will exist outside the scope of the business process.

The artifact notation contained in the bizagi modeler application includes: group, annotation, image, header, formatted text, and custom artifacts. Table 2.18. explain the type notation on artifacts.

Table 2.18. Artifact notation

Notation	Notation function
Group	*Artifacts* that provide a visual mechanism for informally grouping diagram elements.
Annotation	A mechanism for modelers to provide additional information for readers of the bpmn diagram.
Image	Allows images stored on the computer to be inserted into the diagram.
Header	Displays diagram properties (author, version, description), and is automatically updated with the information contained in those properties.
Formatted text	Allows text to be inserted into the diagram to provide additional information.
Custom artifacts	Helps define and use *artifacts*. *Artifact* provides the ability to display additional information about business processes that are not directly related to the flow.

2.3. Value Chain

According to related, service companies have inbound logistics and outbound logistics not in real terms [13]. Value Chain is a model that can help analyze activities that provide value and competitive advantage [14]. The purpose of conducting Value Chain analysis of internal organizations is to separate organizational behavior from organizational problem solving [15]. The value chain approach divides business processes into two activities, including primary activities and secondary activities (support activities). The primary process is a process that performs the main function, produces services for customers, and generates added value for the organization. While the supporting process is a process that supports the main process, producing services for the internal organization.

2.4. Simulation Techniques

In a quotation, the sample is a small part of the population members taken according to certain procedures so that it can represent the population [16]. So it can be concluded that the sample is part of the data that is the object of the population taken. BPMN simulation is a powerful tool to help organizations optimize their business processes before making real changes. By understanding and evaluating various aspects of the process, organizations can improve efficiency, reduce risk, and produce better results. BPMN simulation that includes process validation, time analysis, and resource analysis [14][5], [17] can provide deep insight into the performance of business processes.

2.4.1. Validation Process

The validation process can be simulated by identifying scenarios that cover various conditions that may occur during process execution. For example, how the process will respond if there is an error or if the data entered is invalid. Simulate these scenarios to evaluate the performance of the business process that makes the business process more effective and efficient.

2.4.2. Time Analysis

This stage allows the organization to analyze the time required and complete each task or activity in process. With Thus can reduce failure of the business process.

2.4.3. Resource Analysis

BPMN simulation can be used to analyze resource allocation, including the number and type of human resources required to run each business process. Resource analysis helps in identifying whether the organization has sufficient and optimal capacity to handle the workload generated by the process.

3. RESEARCH METHODOLOGY

3.1. Research Design

This research uses a quantitative approach. The quantitative approach is an investigation of social problems based on testing a theory consisting of variables, measured by numbers, and analyzed by statistical procedures to determine whether the predictive generalizations of the theory are true [16]. With quantitative methods using the activity-related variables approach, it can show the relationship or characteristics of the activities being observed including 3 things, namely the number of tokens, time execution, and utilization of

human resources. The instruments in this study include 3 question instruments covering business processes, actors involved, and the time required [18]. Measurement is done by simulation, which starts from the validation process, analyzing the time and efficiency of each actor involved (resource) [14], [5], [17].

The design that will be used to complete this research with a quantitative approach. This research begins with the identification and formulation of problems in the organization. Identification is obtained from observations and interviews at the organization. At the observation stage, a communication gap was found in the organization because the SOP had not been defined. While in the interview process, the research asked the leaders of the organization for recommendations on business processes to be visualized. The data obtained became the formulation of the problem in this study. From the problems that have been identified, a literature study is needed to support researchers in solving the problems raised. Researchers learn about theories obtained from books, journals, theses, and previous research that correlate with this research.

Thus, analysis is the processing of data obtained from the results of interviews and then outlined in the value chain. The analysis contains operational guidelines, technical guidelines, and job descriptions for each function related to the business processes to be modeled. Analysis of business processes begins with sorting out the main processes and supporting processes. After getting the process that will be recommended with the consideration of the leadership. Business process modeling is carried out using dimensional mapping which contains regulations, applications, data used, and running business processes. Modeling by finding actors and tasks, modeling is done in Bizagi Modeler. After the modeling is deemed appropriate from the data obtained previously, the process is carried out.

verify and seek approval from all heads of fields and units for the business processes that have been modeled, Furthermore, the model is harmonized by mapping and synchronizing between business processes at each level in the BPMN hierarchy. This process refers to the harmonization pattern which is divided into 3 namely sequential, hierarchical, and duplication. Sequential is intended so that the business process of one unit with another work unit has a sequential process. Hierarchical to translate between business processes that have sub-processes. While duplication is aimed at several work units in a business process that seems different, it turns out to be the same, so harmonization is needed to maximize each work unit in the running business process. After the harmonization goes as expected, then the simulation process.

The harmonization results that have been made are then simulated to obtain results and conclusions. The results of each work unit are optimized starting from the validation process, analyzing the time (time) and efficiency of each actor involved (resource). Thus it will get a model that has been optimal, and become an organizational consideration to optimize existing human resources. After the modeling was deemed optimal, the researcher made a decision. The results of the research are used as conclusions and research suggestions. The results of this research for the organization are in the form of documentation of business process models that have been analyzed and improved.

3.2. Data Collection Methods

The methods used to collect data in this research include interviews that are conducted informally. This stage is used to explore information about business processes in the organization. This data collection technique is done by studying or looking for previous references through journals, books, theses and articles on the internet.

3.3. Object of Research

This research was conducted at the Yatim Mandiri Foundation. Yatim Mandiri is a place for people to contribute to others sincerely and selflessly. This research will take data on Indonesian Independence Volunteers. Based on initial observations, several obstacles were found that could interfere with management not running properly. The obstacles found include the lack of human resources to manage while volunteers are a priority program, as well as SOPs that have not been defined. From these findings, researchers compiled this research to be able to optimize HR by defining SOPs that can later be used for HR to run according to their duties and functions.

3.4. Analysis

Analysis is the processing of data obtained from the results of interviews and then outlined in the value chain. The analysis contains operational guidelines, technical guidelines, and job descriptions for each function related to the business processes to be modeled. Analysis of business processes begins with sorting out the main processes and processes supporters. After getting the process that will be recommended with the consideration of the leadership.

3.5. Modeling

Business process modeling is done using dimensional mapping which contains regulations, applications, data used, and running business processes. Modeling by finding actors and tasks, modeling is done on Bizagi Modeler.

3.6. Verification

After the modeling is deemed appropriate from the previously obtained data, a verification process is carried out and requests approval from all heads of fields and units for the business processes that have been modeled.

3.7. Harmonization

The model is harmonized by mapping and synchronizing between business processes at each level in the BPMN hierarchy. This process refers to the harmonization pattern which is divided into 3 namely sequential, hierarchical, and duplication. Sequential is intended so that the business process of one unit with another work unit has a sequential process. Hierarchical to translate between business processes that have sub-processes. Whiled duplication is aimed at several work units in business processes that seem different, but turn out to be the same, so harmonization is needed to maximize each work unit in the running business process. After the harmonization goes as expected, then the simulation process.

3.8. Business Process Simulation

Business process simulation consisting of 3 stages. Stages consisting of the validation process, time analysis, and resource analysis using the Bizagi modeler tool. Thus it will get an optimal model, and become an organizational consideration to optimize existing human resources.

3.8.1. Validation process

The validation process exposes the input processed in the business process to be the same as the output carried out in one time the business process is running. Can be known to be the same if the service is carried out with the same number of users. The goal is to evaluate the performance of business processes that are valid, effective and efficient.

3.8.2. Time analysis

Contains the time required in each activity in the business process. In this stage, researchers will enter the estimated time that can be known through the data that has been obtained. The goal is to reduce the failure of business processes and streamline the time each business process runs.

3.8.3. Resource analysis

At this stage the researcher will enter the sigma of the actors involved in a single running business process. Which can later be mapped to get the results desired analysis. The goal is to prevent under- and over-utilization of human resources in every running business process.

4. RESULT AND DISCUSSION

4.1. Data Collection

Data collection at Yatim Mandiri is used to find out and obtain documents related to ongoing business processes, how the flow of each business process, how long it takes in each business process and who are the stakeholders involved. Documentation provided in the form of internal memos guiding the implementation of the self-reliance volunteer program.

4.2. Business Process Analysis

The results of the previous data collection process will be analyzed to more clearly describe the flow of each current business process and identify the business processes that exist in each business process in the internal memo of independent orphan independence volunteers.

4.2.1. Analysis Value Chain.

This analysis is carried out to determine what value can be generated in the implementation of the independent orphan independence volunteer program. The results of the analysis in table 4.1. are in the form of main activities which will later be used as a reference in business process modeling. This research uses the value chain for service because the object of research provides Fundraising and distribution services.

Table 4.1. value chain for service

		Increasing Program Variety			
Main Activitie		Improve *Branding*			
		Increase *Fundraising* and distribution			
Supporting Activities	*Inbound Logistics*	*Operation*	*Outbound Logistics*	*Marketing*	*Service*
	Administrative Services			Program Services	
	Coordinate with branch heads and program staff.	Make a program proposal.	Make a work program plan.	Campaign implementation and program fundraising.	Activity budget management
	Program proposal approval.	Take notes and reporting on the budget.	Report and Publication of program implementation	Program Evaluation	Program Implementation.

The output results of the value chain analysis for services are in the form of an explanation of services or services in the field of social service services. The results of the explanation that has been given will be used as input for the current modeling analysis.

4.2.2. Business Process Modeling

After analyzing the business process, the author models the business process. The model of the volunteer program application business process can be seen in Figure 4.1.
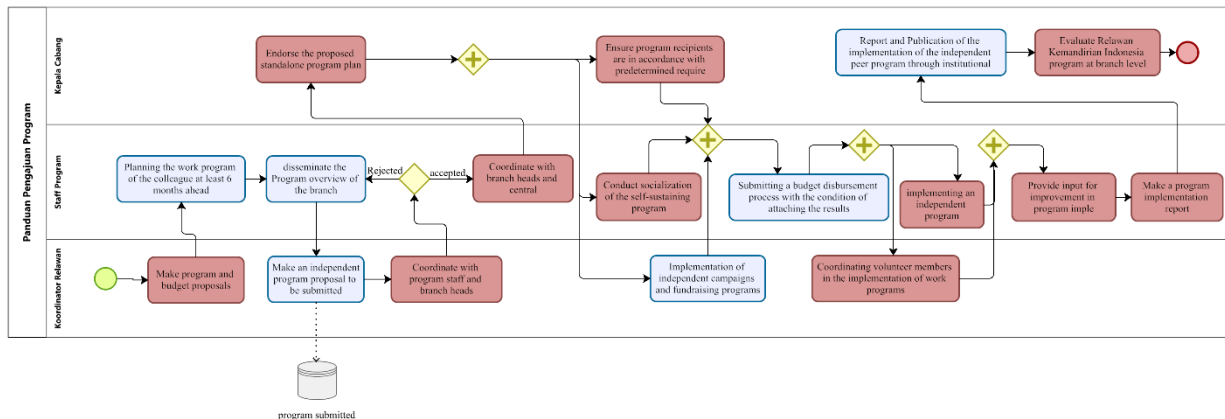

Figure 4.1.

4.2.3. Verification and Harmonization

After modeling the business process, the author verifies and harmonizes the business process. At this stage the business process to be seen and verified the business process model with the Lead Program.

4.2.4. Business Process Simulation

Simulation is done using the bizagi application. Business process simulation consists of 3 stages. Stages consisting of the validation process, time analysis, and resource analysis. With the aim of maximizing program submission time every month, increasing program variations, increasing branding, and increasing fundraising and distribution.

At this stage it is used to determine the results of process flow validation. The simulation results of the program submission process. At the stage of the validation process presented in Table 4.3. shows that the business process is run 50 times and the process also ends 50 times.

Table 4.3. Validation process

Name	Type	Instances completed
Program Submission Guidelines	Process	50
Endorse the proposed standalone program plan	Task	50
Ensure program recipients are in accordance with predetermined requirements	Task	50
Coordinate with branch heads and central programs	Task	50
Conduct socialization of the self-sustaining program	Task	50
implementing an independent program	Task	50
Provide input for improvement in program implementation	Task	50
Make a program implementation report	Task	50
Make program and budget proposals	Task	50
NoneStart	Start event	50
Planning the work program of the colleague at least 6 months ahead	Task	50
Make an independent program proposal to be submitted	Task	105
Implementation of independent campaigns and fundraising programs	Task	50
Submitting a budget disbursement process with the condition of attaching the results of the acquisition of donations	Task	50
Report and Publication of the implementation of the independent peer program through institutional social media	Task	50
disseminate the Program overview of the branch	Task	105
Coordinating volunteer members in the implementation of work programs	Task	50
NoneEnd	End event	50
Evaluate Relawan Kemandirian Indonesia program at branch level	Task	50
ExclusiveGateway	Gateway	105
ParallelGateway	Gateway	50
ParallelGateway	Gateway	50
ParallelGateway	Gateway	50
ParallelGateway	Gateway	50
Coordinate with program staff and branch heads	Task	105

4.2.4.2. Time analysis

In the time analysis, the research will include the time required to complete an activity. The results of the time analysis simulation are presented in Table 4.4.

Table 4.4. Time analysis

Name	Min. time (m)	Max. time (m)	Avg. time (m)	Total time (m)
Program Submission Guidelines	475	930	546.5	36825
Endorse the proposed standalone program plan	5	5	5	250
Ensure program recipients are in accordance with predetermined requirements	5	5	5	250
Coordinate with branch heads and central programs	5	5	5	250
Conduct socialization of the self-sustaining program	5	5	5	250
implementing an independent program	180	180	180	9000
Provide input for improvement in program implementation	30	30	30	1500
Make a program implementation report	60	60	60	3000
Make program and budget proposals	30	30	30	1500
NoneStart				
Planning the work program of the colleague at least 6 months ahead	30	30	30	1500
Make an independent program proposal to be submitted	30	30	30	3150
Implementation of independent campaigns and fundraising programs	30	30	30	1500
Submitting the budget disbursement process with the condition of attaching the results of the acquisition of donations	5	5	5	250
Report and Publication of the implementation of the independent peer program through institutional social media	5	5	5	250
disseminate the Program overview of the branch	30	30	30	3150
Coordinate volunteer members in the implementation of work programs	180	180	180	9000
NoneEnd				
Evaluate Relawan Kemandirian Indonesia program at branch level	30	30	30	1500
ExclusiveGateway				
ParallelGateway				
ParallelGateway				
ParallelGateway				
ParallelGateway				
Coordinate with program staff and branch heads	5	5	5	525

It can be concluded that in carrying out the program submission business process, it takes a minimum of 7 hours 55 minutes, maximum took 15 hours 30 minutes, averaged for 9 hours 6 minutes 30 seconds and the total time taken in 50 submissions was 25 days 13 hours 45 minutes.

4.2.4.3. Resource analysis

In resource analysis, it is used to find out the predicted results of how the business process runs with the available resources. The simulation results of the program submission business process are presented in Table 4.5.

Table 4.5. Resource analysis

Resource	Utilization
Branch Manager	71.42 %
Program Staff	82.17 %
Volunteer Coordinator	88.72 %

It can be concluded that the role that has great potential in the smooth flow of the business process is the Volunteer Coordinator with a utilization value of 88.72% and the role that has little potential in the process is the branch head with a utilization value of 71.42%. So that the role of other devices is needed to assist the program submission process in addition to program staff and administrative staff.

CONCLUSION

Data collection at Yatim Mandiri is used to find out and obtain documents related to ongoing business processes, how the flow of each business process, how long each business process takes, and who are the relevant stakeholders. Documentation provided in the form of internal memos that guide the implementation of the volunteer independence program. The parties related to the business process of implementing the volunteer independence program that occurs at this time have 3 actors, namely, Branch Head, Program Staff, and Volunteer Independence Coordinator. This analysis is carried out to find out what value can be generated from the implementation of the independent orphan volunteer program. The results of the analysis are in the form of main activities which will be used as a reference in business process modeling. The output of the value chain for service analysis is an explanation of services in the field of social services. The results of the explanation that has been given will be used as input for the current modeling analysis. After analyzing the business process, the author models the business process. Business process model for applying for a self-reliance volunteer program. The resulting model of program submission guidelines includes authorizing the proposed independent program plan, ensuring program recipients in accordance with predetermined requirements, coordinating with the head of the central program branch, conducting independent program socialization, implementing independent programs, providing input for improvements in program implementation, making program implementation reports, making program and budget proposals, planning partner work programs for at least the next 6 months, making independent program proposals to be submitted, implementation of campaigns and fundraising for independent programs, submitting a budget

disbursement process with the condition of attaching the results of the acquisition of donations, publication reports on the implementation of independent peer programs through institutional social media, disseminating program descriptions from branches, coordinating volunteer members in the implementation of work programs, evaluating Indonesian independence volunteer programs at the branch level, and coordinating with program staff and branch heads. After modeling the business process, the author verifies and harmonizes the business process. At this stage the business process can be seen and verified the business process model with the Lead Program. Simulation is done using the Bizagi application. Business process simulation consists of 3 stages. This stage is used to determine the results of process flow validation. In the time analysis, the research will include the required time needed to complete an activity in 50 submissions 25 days 13 hours 45 minutes. In the resource analysis, it is used to determine the predicted results of how the business process will run with the available resources. It can be concluded that roles with the greatest potential in the smooth running of the business process is the Volunteer Coordinator with a utilization value of 88.72% and the role with the least potential in this process is the branch head with a utilization value of 71.42%. So that other roles are needed to assist the program submission process in addition to program staff and administrative staff. The results of this study indicate that the simulation results carried out by BPMN successfully model the volunteer program submission can help communication between HR. And it will be useful to help further in other models with many models while improving resource performance.

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