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Research Article

An Analytical Study of Business Process Improvement in a Public Sector Organization Managing Water Resources

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ABSTRACT

A government organization responsible for managing irrigation infrastructure plays a strategic role in water resources governance through various public infrastructure initiatives. However, challenges arose in the recruitment process of community facilitators (TPMs), especially at the document screening stage, where the file screening process was lengthy due to duplicate data entries such as the National Identification Number (NIK). In addition, manually managing TPM data has increased the risk of errors, reduced process efficiency, and placed a significant workload on IT personnel. This research aims to analyze and model the current business process while proposing improvement recommendations using the Business Process Improvement (BPI) method. The research method consists of three main stages: organizing for improvement, process understanding, and streamlining. The business process was modeled using Business Process Model and Notation (BPMN), and performance was evaluated based on utility, cost, and time. The findings showed that the proposed recruitment process model resulted in an 82.54% increase in time efficiency, a 156% increase in workload utilization, and a 42.85% reduction in costs. Meanwhile, in the data management process, time efficiency increased by 39.04%, workload efficiency increased by 58.21%, and cost efficiency reached 4.39%. These results indicate that the redesigned process is feasible to implement, offering significant gains in operational efficiency and cost effectiveness. The integration of the proposed information system is expected to improve the overall performance of the organization and enhance public services.

Keywords: *Business Process Improvement, Infrastructure Irrigation Programs, Business Process, Business Process Modeling and Notation (BPMN), Efficiency Improvement*.

INTRODUCTION

In accordance with national water management policy, several government organizations are responsible for water resource management, including planning, construction, and maintenance of irrigation infrastructure. One of organization, located in East Java, is implementing a program aimed at improving irrigation efficiency in agriculture through the rehabilitation of water networks. The main initiative in this program focuses on increasing the use of groundwater-based irrigation systems, with significant community involvement. Evidence shows that this program has made a positive contribution to local employment and agricultural productivity (Inah et al., 2023). However, the effectiveness of this program is highly dependent on well structured operational processes, particularly in the recruitment and data management of community facilitators (TPMs), who play a crucial role in daily reporting and project monitoring.

The current business processes related to TPM recruitment and data management reveal several inefficiencies. For example, the screening of candidate documents is often delayed due to duplicate personal data, such as identity numbers, which causes recruitment bottlenecks and additional workload for technical staff. Additionally, TPMs data management is still done manually by one IT staff member, resulting in an imbalance in workload, increased human error, and delays in distributing access credentials. These inefficiencies hinder TPMs' ability to report daily progress, which directly impacts the institution's financial operations, including delayed salary payments and budget planning disruptions. Manual data processing, especially in large scale operations, poses risks related to time, cost, and utility (Sharma, 2020;Yetgin & Altas, 2025). An integrated and computerized system is therefore essential to ensure effective performance monitoring and data governance.

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To address this issue, this study applies the Business Process Improvement (BPI) method as a structured approach to analyze and improve existing processes (Pamungkas & Fajar, 2022). BPI has proven effective in various public sector implementations, as seen in previous studies where its application resulted in significant reductions in processing time and improvements in process quality (Kurz et al., 2023). This research focuses on designing improved business processes for two critical operations—TPMs recruitment and TPMs data management—from the eight processes identified. By simplifying these initial activities, the study aims to optimize the overall implementation of the irrigation program. The proposed improvements consider the dimensions of usability, cost, and time to ensure practical and scalable results. The outcomes are expected to provide technical and managerial recommendations that support not only program efficiency but also its replicability in similar institutional settings.

OBJECTIVES

This study aims to improve the performance of key business processes in a government organization operating in the field of water resource infrastructure management. The focus of this study is on community-based irrigation programs that involve the recruitment and coordination of field facilitators, known as Community Facilitators (TPMs), who are responsible for essential daily monitoring and reporting tasks critical to the program's success. To achieve this, the study conducts an in-depth analysis and visual modeling of the current business processes related to TPMs recruitment and data management. These processes are critical starting points that influence the overall program schedule and the quality of its implementation. Business Process Model and Notation (BPMN) was used to map workflows, using Bizagi Modeler software as a tool to document and simulate how tasks are currently performed. This approach enabled the identification of inefficiencies, such as duplicate data, slow screening procedures, and excessive manual workload.

Process simulations are used to evaluate performance based on utility, cost, and time dimensions, providing insights into the operational burden caused by manual systems and disjointed workflows. By analyzing these indicators, the study reveals structural weaknesses in human resource and information management, as well as how these issues affect reporting accuracy, payment schedules, and service delivery outcomes. A redesigned process model is proposed to address these challenges, and its effectiveness is measured using the Efficiency Improvement Value (EIV) formula. This comparison highlights how the improved process can reduce delays, balance workloads, and improve timeliness in both internal operations and external reporting. The results aim to demonstrate that a structured, technologyenabled process design can deliver tangible improvements in organizational efficiency. Beyond its technical contributions, this study seeks to provide strategic recommendations supporting more effective community-based program management. These recommendations include system integration, improved role distribution, and simplified data workflows, all aimed at enhancing service delivery and operational sustainability.

METHODS

This study uses a qualitative descriptive approach to analyze and improve business processes within public organizations responsible for managing infrastructure programs in the water resources sector. This study focuses on evaluating inefficiencies and proposing improvements to processes related to administrative and technical workflows. To achieve this, the Business Process Improvement (BPI) methodology is used as the main framework. BPI offers a systematic and structured method for evaluating, modeling, and improving existing business processes with the aim of increasing operational efficiency, reducing errors, and improving service quality.

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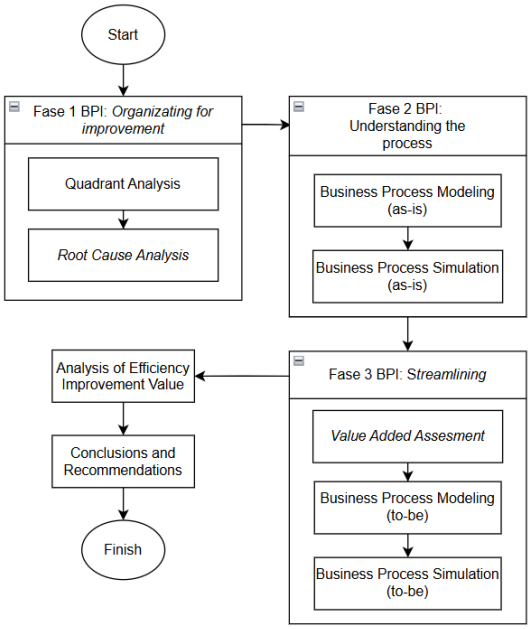

Figure 1 Methodology in Research

This initial phase focuses on identifying which business processes require improvement and why such improvements are necessary. Through this, inefficiencies or activities that do not add value can be identified. A value chain analysis is then conducted to evaluate the contribution of each activity to the organization's objectives (Strakova et al., 2021;Maulana, 2023). Activities that do not significantly contribute to value creation are identified for possible simplification or elimination. Further quadrant analysis breaks down business activities to assess their efficiency and effectiveness, helping to identify bottlenecks, duplication, or delays. Finally, root cause analysis is applied to determine the underlying factors causing inefficiencies, ensuring that proposed solutions target the actual source of the problem rather than the symptoms (Dumas et al., 2013).

This phase aims to gain a comprehensive understanding of existing business processes by modeling current workflows (as-is). The process begins with business process decomposition, in which complex workflows are broken down into smaller, clearly defined activities, along with the actors responsible and their logical flow (Saputror & Kustanto, 2023). Using BPMN and tools such as Bizagi Modeler, the actual process is mapped to create a visual and structured representation. An as-is simulation is then conducted to measure current performance in terms of time, cost, and utility. This simulation helps identify inefficiencies and serves as an objective basis for proposing a redesign in the next phase.

The goal of this phase is to simplify and optimize processes by eliminating non-value-added activities, thereby improving overall efficiency. A value-added assessment is conducted to classify each activity as Business Value Added (BVA), Required Value Added (RVA), or Non-Value Added (NVA), allowing for more targeted improvements (Harrington, 1991). The key issues identified earlier were documented through a problem list, and their impact was assessed. Based on these findings, future process models are developed using BPMN to propose improved workflows, which often involve automation and system integration. Specific improvements include a TPMs recruitment system with an automatic NIK validation feature and a TPMs data management system with manual and bulk data import options for user account creation. Finally, upcoming simulations evaluate the effectiveness of the improved process against time, utility, and cost metrics. The results show how the redesigned process can reduce manual workload, improve utility, and minimize delays-ultimately supporting more efficient program execution.

RESULTS

Based on the background that identifies inefficiencies in the recruitment and data management of community facilitators (TPMs) in infrastructure irrigation programs, and in line with the research objectives and methodological approach described earlier, this section presents the results of the analysis and business process improvement efforts.

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By applying the Business Process Improvement (BPI) method, this study systematically analyzes existing workflows and identifies key areas requiring intervention. Using BPMN and Bizagi Modeler, as-is and to-be models are built and simulated to evaluate process performance based on time, cost, and ease of use. The following subsections describe the findings at each phase of the BPI framework, which form the basis for proposing better, more efficient, and integrated business processes within the public organization under study.

3.1 Organizing for Improvement

The initial phase, Organizing for Improvement, focuses on understanding the current state of the organization and identifying areas for improvement. At this stage, data is collected to support analysis, including quadrant analysis, and root cause analysis.

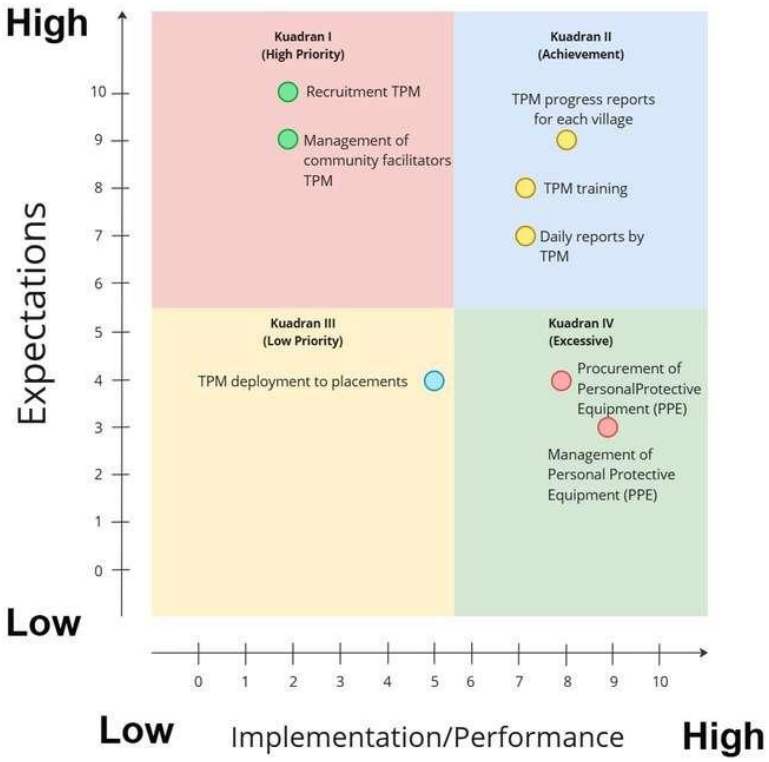

Figure 2 Quadrant Analysis

Based on a quadrant analysis of business processes in the technical division of the irrigation infrastructure program managed by the public sector organization, the recruitment and management of community facilitator data is placed in the first quadrant (high priority). These processes are characterized by high stakeholder expectations, but current implementation is still relatively low in terms of performance. This mismatch highlights the urgent need for improvement, particularly in terms of enhancing process efficiency, ensuring data accuracy, and promoting system digitization. In response, the next analytical step involves root cause analysis to identify the underlying issues hindering optimal implementation.

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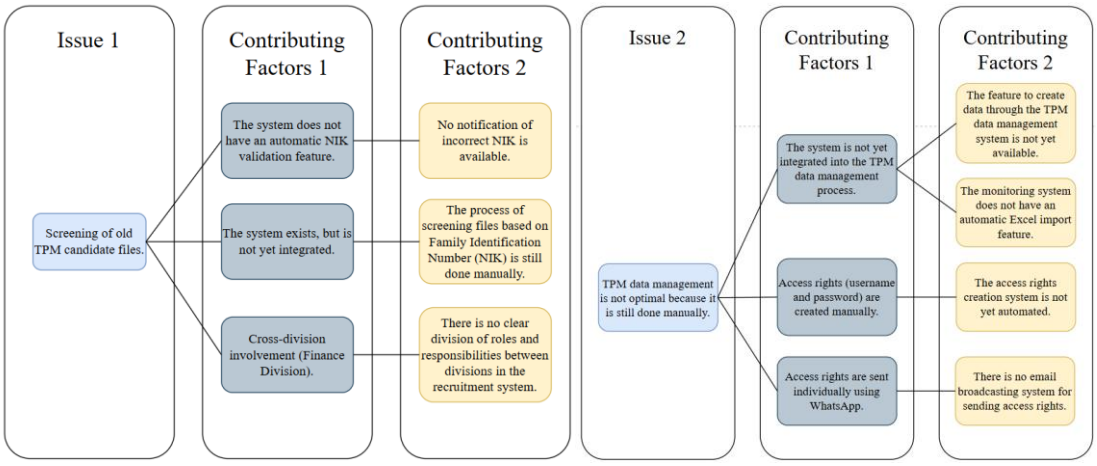

Figure 3 Root Cause Analysis for 2 Issue

A root cause analysis was conducted to investigate delays in the document screening process for prospective community facilitators (TPMs) in an irrigation infrastructure program managed by a public sector agency (Issue 1). This analysis identified key issues, shown in the leftmost column (blue section), which significantly contributed to workflow inefficiencies. The middle column describes several direct factors that complicate the process flow. These factors are then broken down into more fundamental root causes, which are presented in the rightmost column (yellow section). These root causes form the basis for designing an improved business process (to-be) aimed at addressing inefficiencies and improving overall performance. Further root cause analysis (Issue 2) examines delays in the data management process for community facilitators (TPMs), which are primarily caused using manual systems that are not yet integrated into a centralized digital platform. This analysis outlines the main issues in the leftmost column (blue), which shows the core issues that are currently hindering efficiency. The middle column displays several direct factors that add complexity to the workflow and hinder timely task execution. These factors are further explained in the far-right column (yellow) as underlying root causes, which form the basis for the proposed business process improvements (to-be). These improvements aim to simplify the system, reduce manual workload, and ensure higher operational accuracy and efficiency in the implementation of public irrigation programs.

3.2 Understanding the Process

The second phase, Understanding the Process, aims to develop a comprehensive understanding of existing business processes. This phase is critical for identifying how workflows operate in practice, who the stakeholders are, and how different activities interact within the system. The data collected at this stage consists of two main components: modeling and simulation of existing business processes. Modeling provides a visual and formal representation of current workflows using standard notation, enabling technical teams and stakeholders to analyze the existing system more clearly. These insights form the basis for evaluating which aspects of the process require improvement and will serve as critical input for the design of the future (to-be) model in the next phase.

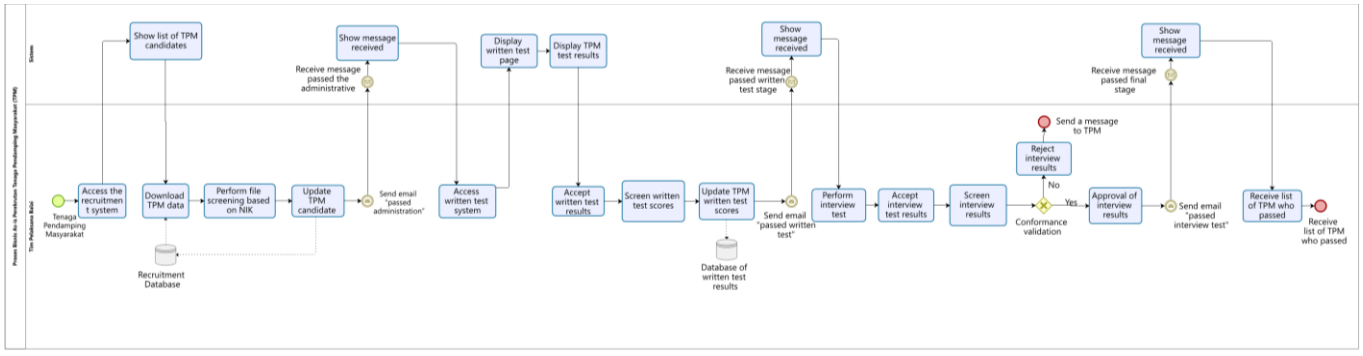

Figure 4 TPM Recruitment Business Process as-is

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The business process model presented below illustrates the workflow for recruiting community assistants (TPMs), developed using the Business Process Model and Notation (BPMN) standard. This modeling was done to provide a structured and visual representation of the existing recruitment procedures implemented in irrigation infrastructure programs in the public sector that focus on water resource development. By applying BPMN, process elements such as the need for community development workers, administrative screening, validation stages, and decision-making are made clear, enabling stakeholders to analyze the workflow, identify inefficiencies, and identify potential delays more effectively. This model serves as a reference for further simulation and improvement efforts in the subsequent phases of this study.

Table 1 Time Analysis of the TPM Recruitment Business Process as-is

Time Analysis of the TPM Recruitment Business Process	
Instances Started	3
Instances Completed	3
Minimum Time	53436 minutes
Maximum Time	56346 minutes
Average Time	55369,66 minutes

Table 1 shows the results of the time indicator simulation for the business process related to the recruitment of community facilitators (TPMs). This analysis includes Instances Started, Instances Completed, Minimum Time, Maximum Time, and Average Time, which were generated using Bizagi Process Modeler tools to evaluate workflow performance. This simulation was conducted as part of a broader evaluation of operational efficiency in the public sector irrigation infrastructure program, with the aim of identifying potential delays and opportunities for process optimization. The total average time required to complete the entire recruitment process was recorded at 55,369.66 minutes, indicating that the current workflow may require a redesign strategy to improve time efficiency at all stages of implementation.

Table 2 Utility and cost Analysis of the TPM Recruitment Business Process as-is

Utility and cost Analysis of the TPM Recruitment Business Process			
Resource	**Quantities**	**Utilization**	**Cost**
Technical Division	14 persons	30,48%	IDR 833.616.336
Financial Division	6 persons	11,72%	IDR 357.264.000

Table 2 presents a utility and cost analysis for the recruitment process of community facilitators (TPMs). The analysis focuses on the two main resource contributors in public sector organizations involved in infrastructure-related programs. The technical division contributes a contribution rate of 30.48%, with a fixed cost of IDR 833.616.336, while the finance division contributes 11.72%, with a fixed cost of IDR 357.264.000. In this process, the finance division was only responsible for verifying candidates' documents based on the Family Identification Number (NIK), which was a limited and specific task. However, despite its minimal involvement, the costs incurred for this division are relatively high and seem disproportionate to its role. Therefore, a clearer delegation of duties is recommended to ensure that only relevant divisions are involved in the recruitment workflow, which can improve operational efficiency and reduce unnecessary expenses.

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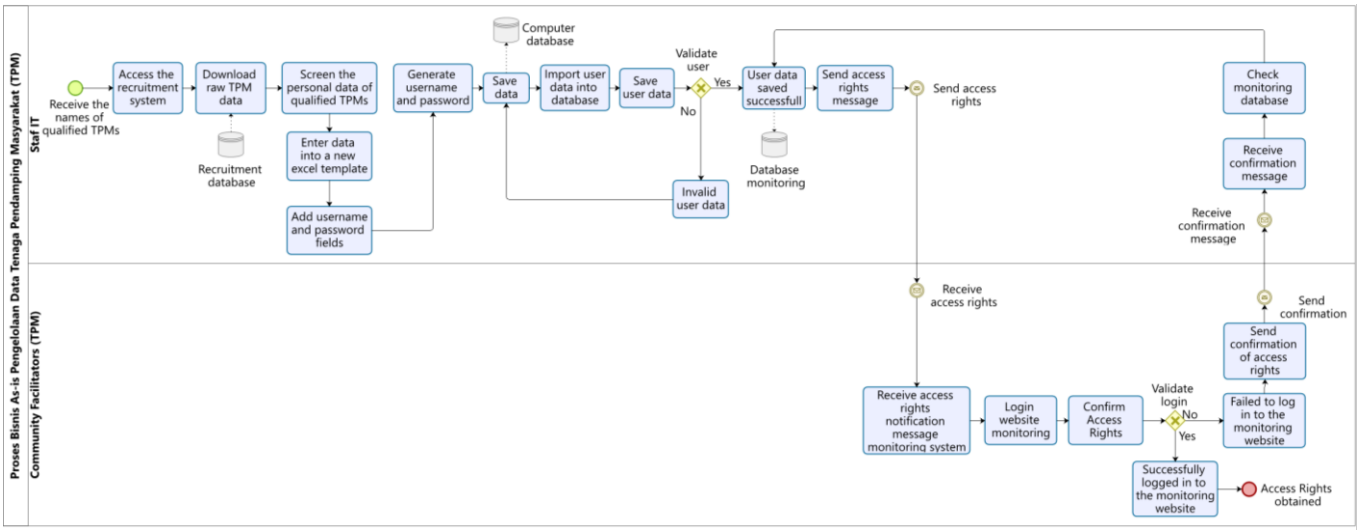

Figure 5 TPM Data Management Business Process as-is

The workflow illustrated describes the data management process for community facilitators (TPMs), which was designed using the Business Process Model and Notation (BPMN) standard. The model was developed as part of a broader analysis of business processes in a public sector program focused on water resources management infrastructure. By mapping the current processes in this standardized format, activities that are still performed manually or outside the system were identified.

Table 3 Time Analysis of TPM Data Management Business Process as-is

Time Analysis of TPM Data Management Business Process	
Instances Started	3
Instances Completed	3
Minimum Time	8680,05 minutes
Maximum Time	10122,05 minutes
Average Time	9401,38 minutes

Table 3 shows the results of the simulation of time indicators for business processes related to data management of community facilitators (TPMs). This analysis includes Instance Started, Instance Completed, Minimum Time, Maximum Time, and Average Time, generated using the Bizagi Process Modeler tool to evaluate workflow performance. The total average time taken to complete the entire recruitment process was recorded at 9401.38 minutes, indicating that the current workflow may require a redesign strategy to improve time efficiency at all stages of implementation.

Table 4 Utility and cost Analysis of the TPM Data Management Business Process as-is

Utility and cost Analysis of the TPM Data Management Business Process			
Resource	**Quantities**	**Utilization**	**Cost**
Staf IT	1 person	4,31%	IDR 59.544.013
Community facilitators (TPM)	700 persons	1,18%	IDR 17.500.005.600

Table 4 presents an analysis of benefits and costs for the community facilitator (TPMs) data management process. This analysis focuses on the two main resource contributors in public sector organizations involved in infrastructure-related programs. IT staff contribute 4.31% to the overall workload of the process, with a fixed cost of IDR 59.544.013, while community facilitator (TPMs) contribute 1.18%, but with a much higher fixed cost of IDR 17.500.005.600. In

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this business process, IT staff are fully responsible for managing facilitator data, which includes manually creating user credentials for around 700 facilitators who have successfully passed the recruitment stage. In addition, this process requires IT staff to manually distribute login credentials via WhatsApp, which is time-consuming and prone to delivery errors. These findings indicate an urgent need to streamline workflows and integrate automation features to reduce reliance on manual inputs and improve overall process efficiency.

3.3 Streamlining

The third stage in the BPI method is streamlining, focusing on designing improvements that increase efficiency and add value to the overall business process. This stage aims to simplify workflows, eliminate non-value-added activities, and ensure that each step makes a meaningful contribution to the organization's goals. In the context of public sector irrigation infrastructure programs, data collected during this stage includes value-added assessments, detailed issue documentation and impact evaluation, development of future business process models, and simulation of redesigned processes. These steps are critical in evaluating the effectiveness of proposed changes, especially in identifying opportunities for cost savings, reducing process time, and improving clarity and accountability of interdepartmental roles.

Table 5 Value Added Assesment of TPM Recruitment Business Process

Value Added Assesment of TPM Recruitment Business Process	
Classification	**Quantity**
Business Value Added (BVA)	9 activities
Non-Value Added (NVA)	8 activities
Real Value Added (RVA)	3 activities
Total Activities	**20 activities**

In the process of recruiting community assistants (TPMs), 8 activities out of 20 are classified as Non-Value Added (NVA). These NVA activities do not contribute meaningfully to the organization's goals and indicate inefficiencies in the current workflow. Their existence indicates the need for process improvement, especially in terms of reducing execution time and reducing unnecessary workload for the personnel involved. The high proportion of NVA tasks in this public sector-driven infrastructure initiative highlights critical areas where streamlining efforts can result in measurable improvements in operational performance and resource utilization.

Table 6 Value Added Assesment of TPM Data Management Business Process

Value Added Assesment of TPM Data Management Business Process	
Classification	**Quantity**
Business Value Added (BVA)	3 activities
Non-Value Added (NVA)	14 activities
Real Value Added (RVA)	4 activities
Total Activities	**21 activities**

The Non-Value Added (NVA) activity classification represents process steps that do not contribute directly to value creation and should be prioritized for improvement in terms of time efficiency and resource utilization. In the context of TPMs data management, many activities are non-value-added or in need of improvement, due to manual processes. These activities typically result in unnecessary workload or delays and, if not addressed, can hinder overall process performance. In contrast, tasks identified as Business Value Added (BVA) and Required Value Added (RVA) are retained, as they are essential to operational functions or mandated by regulations or organizational standards. In the context of public sector organizations running programs related to water resources irrigation infrastructure, retaining BVA and RVA activities ensures continuity of service and delivery of measurable benefits to stakeholders and service recipients.

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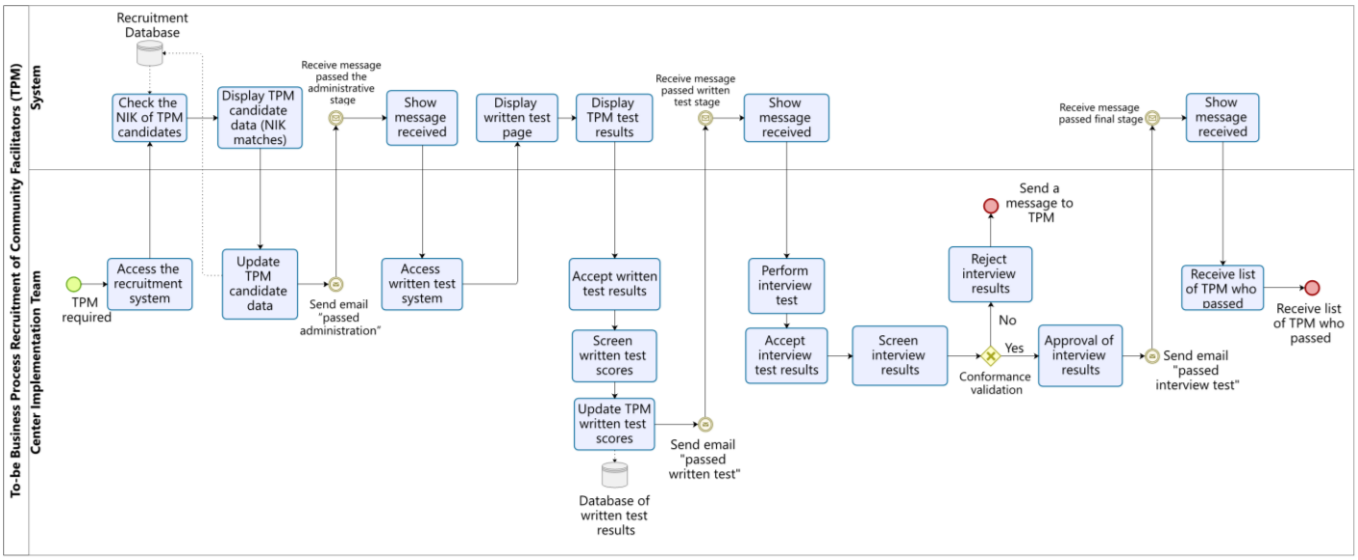

Figure 6 TPM Recruitment Business Process to-be

Figure 6 represents the recommended business process modeling for the recruitment of community assistants (TPMs) introducing some key improvements, as reflected in the redesigned workflow (to-be). One significant change is the elimination of the manual screening activity based on the candidate's National Identification Number (NIK). In the proposed model, this step is replaced with an automated system feature that triggers a notification when a candidate's NIK matches the required screening criteria, thus simplifying the process and reducing the possibility of human error. This redesign is part of a broader effort in the public infrastructure initiative to improve operational efficiency, minimize redundancies, and ensure that administrative tasks are executed more reliably and with less resource dependency.

Table 7 Time Analysis of the TPM Recruitment Business Process to-be

Time Analysis of the TPM Recruitment Business Process	
Instances Started	3
Instances Completed	3
Minimum Time	2969 minutes
Maximum Time	30337 minutes
Average Time	30333 minutes

Table 7 presents the simulation results for the time-based performance indicators of the proposed business process model (to-be) for recruiting community facilitators (TPMs). The analysis includes key metrics such as Instance Started, Instance Completed, Minimum Time, Maximum Time, and Average Time, all generated using the Bizagi Process Modeler tool. This simulation is part of the evaluation of TPM candidate file screening activities based on the Family Identification Number (NIK), with a focus on identifying potential delays and opportunities for process optimization. The simulation results showed a total average turnaround time of 30,333 minutes, indicating a significant improvement over the current process and showing that the redesigned workflow is more efficient and streamlined in practice.

Table 8 Utility and cost Analysis of the TPM Recruitment Business Process to-be

Utility and cost Analysis of the TPM Recruitment Business Process			
Resource	**Quantities**	**Utilization**	**Cost**
Technical Division	14 persons	16,43%	IDR 833.616.000

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Based on the results of the cost analysis presented in the revised recruitment process model, the total cost incurred was IDR 833,616,000, covering 14 persons involved in operational activities. This figure reflects fixed costs exclusively allocated to the use of resources from the Technical Division, with a utilization rate of 16.43%. This indicates that the improved business process is more streamlined and focused, involving only one main division responsible for its execution. The relatively high resource engagement indicates that the improved model not only reduces unnecessary overhead costs but also ensures that available capacity is allocated efficiently over the simulated operational period. These findings highlight the benefits of process simplification in public sector irrigation infrastructure programs, where role clarity and cost containment are critical for sustainable service delivery.

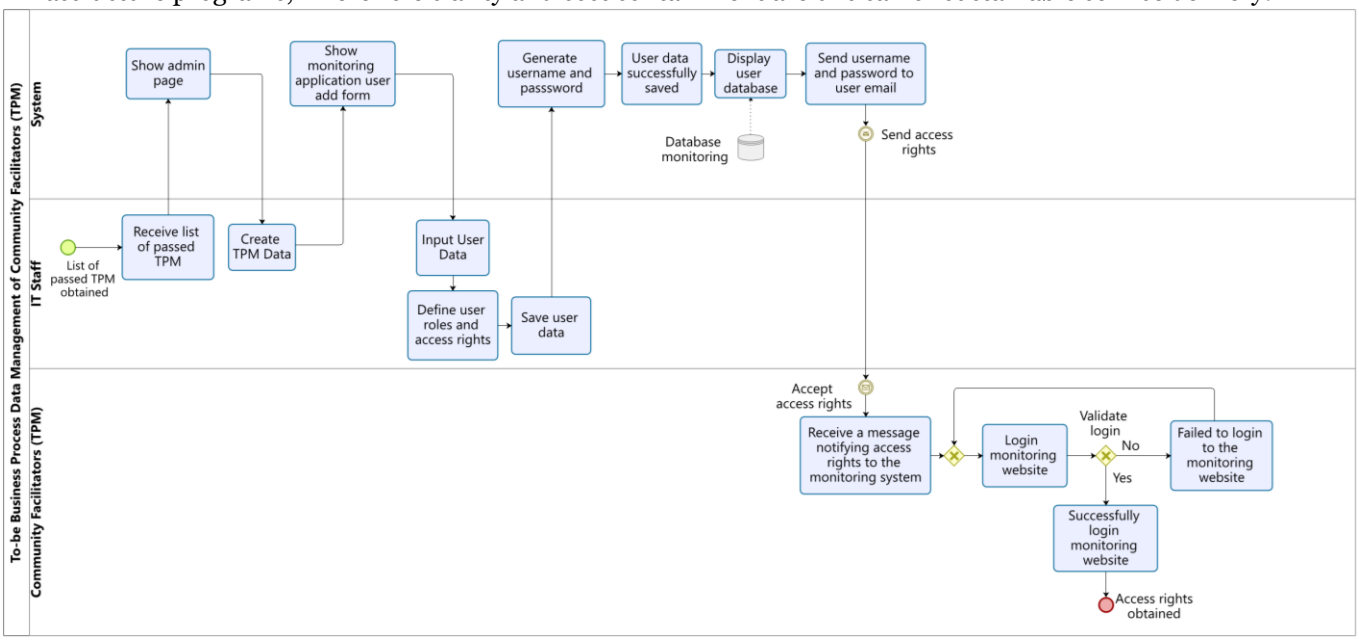

Figure 7 TPM Data Management Business Process to-be

Figure 7 illustrates the proposed business process model for data management of community assistants (TPMs). The redesigned workflow shows a full transition towards system-based or system-integrated operations, eliminating the need for manual intervention. The entire process-including the creation of TPM records, the automatic creation of access rights, and the granting of access rights via email (broadcasting). This approach reflects a broader shift towards digital transformation in public sector irrigation infrastructure programs, aiming to improve accuracy, reduce processing time, and minimize human error while increasing scalability in managing large amounts of personnel data.

Table 9 Time Analysis of TPM Data Management Business Process to-be

Time Analysis of TPMS Data Management Business Process	
Instances Started	3
Instances Completed	3
Minimum Time	6759,25 minutes
Maximum Time	6764,25 minutes
Average Time	6761,25 minutes

Table 9 presents the simulation results for the time-related performance indicators of the proposed (to-be) business process for data management of community facilitators (TPMs). This analysis includes Instance Started, Instance Completed, Minimum Time, Maximum Time, and Average Time, all of which were generated using the Bizagi Process Modeler tool to assess the efficiency of the redesigned workflow. The simulation showed that the average time taken to complete the entire process was 6761.25 minutes, indicating a substantial improvement in time efficiency. This result reflects the effectiveness of the transition of all sub-processes from creating TPM data to creating and

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distributing access rights carried out by the system, in line with digital transformation efforts in the public sector irrigation infrastructure program.

Table 10 Utility and cost Analysis of the TPM Data Management Business Process to-be

Utility and cost Analysis of the TPM Data Management Business Process			
Resource	**Quantities**	**Utilization**	**Cost**
Staf IT	1 person	0,41%	IDR 59.544.000
Community facilitators (TPM)	700 persons	3,07%	IDR 17.499.997.900

Table 10 outlines the results of the cost analysis for the proposed data management process involving two main resources: IT staff and community facilitators (TPMs). IT staff contributes approximately 0.41%, with a fixed allocation of IDR 59,544,000. In contrast, TPM resources contributed 3.07%, with a total fixed cost of IDR 17,499,997,900. The integration of data management into a centralized monitoring system plays an important role in optimizing budget utilization and resource allocation in public sector irrigation infrastructure programs, demonstrating the fiscal advantages of process automation.

3.4 Value of Efficiency Improvement (NPE) Analysis

Value of Efficiency Improvement (NPE) analysis is a stage that aims to calculate how much efficiency improvement is obtained after the business process has been improved. In this analysis, a comparison is made between the as-is and to-be business processes by focusing on three main factors, namely time, utility (resource utilization or workload), and cost. Through this structured comparison, organizations operating in the public sector, particularly in irrigation infrastructure programs, can identify the effectiveness of proposed process improvements and their potential impact on operational optimization. To calculate the level of efficiency using the following formula:

$$NPE = \frac{actual\ value\ (as-is) - proposed\ value\ (to-be)}{proposed\ value\ (to-be)} \times 100\% \quad (1)$$

NPE analysis is calculated by subtracting the actual value (as-is) from the proposed value (to-be) and then sharing it with the proposed value and multiplying by 100%, so that the result of the calculation becomes the efficiency value for each to-be process compared to each as-is process.

Table 11 Efficiency Indicators

Business Process	**Indicators**	**Actual (as-is)**	**Proposed (to-be)**	**Value of Efficiency Improvement (NPE)**
TPM Recruitment Business Process	*Time*	55369,66 minutes	30333 minutes	82,54%
	Utility	42,18%	16,42%	156%
	Cost	IDR 1.190.880.336	IDR 833.616.000	42,85%
TPM Data Management Business Process	*Time*	9401,38 minutes	6761,25 minutes	39,04%
	Utility	5,49%	3,47%	58,21%
	Cost	IDR 17.559.549.613	IDR 17.499.997.900	4,39%

As part of the evaluation of the effectiveness of the proposed business process improvements, Table 11 presents the results of the overall efficiency analysis for the process of recruiting and managing data on community assistants (TPMs). This evaluation is based on three main indicators: time, utility, and cost. The results show that while there was a significant improvement in terms of time and resource utilization, there was only a slight improvement in terms of total costs associated with the data management process, which amounted to 4.39%.

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CONCLUSION

This study successfully modeled the recruitment and data management process of Community Support Personnel (TPMs) in the public sector irrigation infrastructure program using Business Process Model and Notation (BPMN) through the Bizagi Modeler tool. The existing process showed a high level of complexity and significant reliance on manual inputs, especially at the document screening and data handling stages. The modeling phase identified several non-value-added activities that contributed to extended processing time, increased workload, and increased risk of data errors.

Simulation results of the proposed model showed considerable efficiency improvements across all key performance parameters. In the recruitment process, the execution time was reduced from 55369.66 minutes to 30333 minutes. The utility utilization improved significantly from 42.18% to 16.42%, and the operational cost decreased from IDR 1,190,880,336 to IDR 833,616,000. Likewise, the data management process showed significant improvement, with processing time reduced from 9401.38 minutes to only 6761.25 minutes. Utility utilization decreased from 5.49% to 3.47%, indicating a lower workload on human resources. However, the cost difference is relatively small, decreasing from IDR 17,559,549,613 to IDR 17,499,997,900, indicating that cost efficiency in this part of the process is still limited.

Based on the Value of Efficiency Enhancement (NPE) calculation, the future process model provides significant operational benefits. For the TPM recruitment business process, time efficiency increased by 82.54%, utility performance increased by 156%, and costs reduced by 42.85%. As for the business process of managing data on community assistants (TPMs), time efficiency increased by 39.04%, utility increased by 58.21%, and although cost efficiency was only 4.39%, it still showed a positive impact. These findings show that redesigning business processes through a BPI approach not only addresses the challenges at hand but also results in measurable and comprehensive improvements in operational efficiency.

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