

Redesigning HR Business Processes with Camunda BPMN and Chatbot Integration

Hanuga Fathur Chaerulisma¹, Novi Setiani²

^{1,2}Department of Informatics, Faculty of Industrial Technology, Universitas Islam Indonesia, Sleman, Indonesia

¹hanuga.chaerulisma@students.uui.ac.id, ²novi.setiani@uui.ac.id

Abstract

Human Resource Management (HRM) processes such as attendance tracking, bonus management, and employee onboarding are often inefficient due to manual methods that are time-consuming, error-prone, and lack standardisation. This study addresses these issues by implementing the Camunda BPMN Engine and a Telegram-based chatbot, guided by the Agile Business Process and Practice Alignment Methodology (BPPAM). The BPMN engine automates workflows, while the chatbot simplifies interaction, enhancing response time and data accuracy. Significant improvements were observed after implementation. The number of user tasks was reduced. For instance, attendance went from 6 to 0 steps (100% reduction), and onboarding went from 14 to 1 steps (92.86% reduction). Processing times improved as well: attendance dropped from 3–5 minutes to under 2 minutes (60% faster), and bonus approval dropped from over 7 days to less than 1 day (85% reduction). Feedback from employees and HR staff highlighted increased satisfaction due to the system's speed, ease of use, and standardized workflows. The results demonstrate that integrating BPMN automation with chatbot technology can enhance HR operations by increasing efficiency, accuracy, and user experience. The approach offers a scalable solution aligned with modern organizational needs.

Keywords: business process; BPMN; human resource; management; agile

1. Introduction

In the rapidly evolving landscape of business management, the efficiency and effectiveness of human resource management (HRM) plays a significant role in an organization's success [1]. As companies strive to remain competitive, the integration of business process improvement strategies into HRM has become increasingly essential [1],[2]. This integration not only enhances the efficiency of HR operations but also aligns these processes with broader organizational goals, ensuring that human capital management contributes directly to the achievement of business objectives.

Recent studies have demonstrated the potential of BPMN in HRM, particularly in areas such as recruitment, onboarding, and employee performance management. For instance, the previous research highlighted the effectiveness of BPMN in modeling HR processes, leading to significant improvements in process transparency and efficiency [3]. Similarly, research from Majumder, et.al. explored the integration of advanced technologies such as chatbots into HR processes, underscoring the role of BPMN in facilitating the seamless adoption of these technologies [4].

Prior research has introduced a structured method to explore redesign options in business processes, enabling users to generate diverse and innovative ideas, especially when supported by domain knowledge. A case study involving Surabaya's civil registry office demonstrated its practical applicability in the teaching process redesign [5]. Another study [6] proposed an entity-based framework to detect outdated process models by mapping business entities to process elements, addressing the challenge of limited event data. This study was conducted within the context of a mid-sized enterprise facing challenges in managing and executing its core HR processes. The organization relied heavily on manual procedures and lacked standardized workflows for critical operations such as leave management, employee onboarding, and performance tracking. As a result, process inconsistencies, delayed approvals, and a lack of transparency were common issues, prompting the need for a comprehensive redesign of HR business processes. This study contributes to the literature by articulating a business process redesign (BP-Redesign) approach tailored to human resource processes within mid-sized enterprises, particularly those facing complex challenges in intensive personnel management.

To further enhance user interaction and process execution, the redesigned workflows were implemented using the Camunda BPMN engine. In addition, chatbot technology was integrated to facilitate communication between users (employees) and the process engine, allowing for real-time interaction and reducing dependency on manual interfaces [8]. This integration supports not only system efficiency but also improves the user experience, especially for employees who are the end-users of HR services. Recent progress in chatbot and AI technology has helped improve how HR tasks are done. Chatbots can handle routine work, give quick answers, and help keep employees more engaged [7],[8],[9]. Tools like ChatGPT also bring new opportunities for HR, but they come with challenges, such as understanding emotions or protecting privacy [10]. That's why it's important to clearly separate what AI can do and what still needs to be handled by HR staff [11]. Some tasks, like hiring or onboarding new employees, still need human control [12]. This study combining chatbot features with BPMN process design, companies can create HR systems that are efficient and remain under human control.

This study contributes to BPM research by demonstrating that executable BPMN combined with agile methodology and lightweight interfaces can yield measurable process improvements while maintaining user satisfaction. While prior studies have emphasized the theoretical potential of BPMN and chatbot integration [5], empirical validations have been limited. Our implementation bridges this gap by offering a practical framework applicable to mid-sized enterprises.

The subsequent sections of this paper will delve into the methodology for BPMN application in HRM, case studies highlighting successful implementations, and a discussion on the prospects of BPMN in HR management. Through this analysis, the paper aims to contribute to the growing body of knowledge on process improvement in HRM, providing a framework that organizations can adopt to enhance their HR functions.

2. Research Methods

This section will give a brief about the methodology used in this research as described at Figure 1. We adopt the BPPAM [13] with several adjustments in the discovery and the supervision techniques. This research is conducted in the human resources division in a software house with 100 employees.

Traditional Business Process Management (BPM) methodologies are often misaligned with organizational needs due to their rigid structure and lack of integration with daily practices. Agile BPM methodologies focus on quick adaptation and responsiveness to changes. Agile Business Processes

allow for discovering opportunities and reacting quickly, addressing the need for continuous improvement and alignment with daily practice. The BPPAM methodology aims to bridge the gap between organizational practices and business process models [13]. BPPAM consists of three phases: Business Process Discovery (BPD), Business Process Supervision (BPS), and Business Process Assessment and Improvement (BPAI). The methodology emphasizes the integration of daily practices with business processes through continuous feedback.

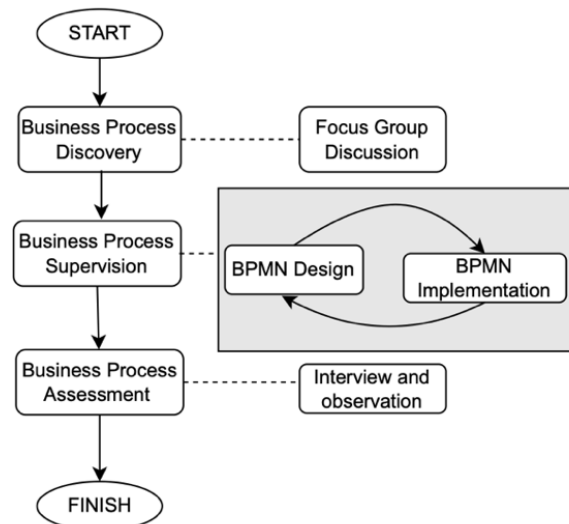


Figure 1. Agile Business Process Redesign Methodology

2.1. Business Process Discovery

The discovery phase was conducted through focus group discussions (FGDs) with key stakeholders, including HR personnel, team leaders, and newly hired employees. Using the seven-dimensional framework proposed by Reijers and Mansar [7], we systematically mapped the existing processes for attendance, bonus approval, and employee onboarding. These processes were analyzed in terms of operational complexity, task volume, behavioral patterns, participant roles, information dependency, and technological support.

In the first phase, focus group discussion was carried out to identify seven aspects in the business process redesign framework [14].

- The internal customers of the business process are the leader and the team of HR division.
- There are three products (or services) generated by the business process:
 - a. Attendance is a fundamental process that every organization needs. This process can track employee presence. This process generates attendance records used by HR to give extra payroll to employees.

- b. A bonus Process is a scheme to give an extra salary to employees based on their performance. This scheme involved leaders and the HR Department. Leaders propose a bonus for an employee to the HR Department. The HR Department can review and approve the bonus for an employee.
- c. Onboarding is a preparation process for new hires ready to work. The HR department and new hires are the internal customers for this process.
- The operation view in Table 1 describes how a workflow operation is implemented by identifying number of tasks in a job, relative size of tasks, and degree of customization.

Table 1. Operation View

Business Process	Number of user tasks	Relative size/tasks	Degree of customization
Attendance	6	5 min	Low
Bonus Processing	4	10 min	High
Onboarding	14	10 min	High

- The behavior view in Table 2 describes how and when a workflow is executed by identifying the sequencing of tasks and scheduling of jobs.

Table 2. Behavior View

Business Process	Sequencing of tasks before using BPMN	Scheduling of jobs
Attendance	<ol style="list-style-type: none"> Employee sends a confirmation of attendance via Telegram to HR. HR recorded in the spreadsheet file. HR provides information about the lunch menu. HR conducts a lunch poll. Employees fill out the poll. HR records the polling results. 	Every night at 8 pm
Bonus Processing	<ol style="list-style-type: none"> Employee sends a confirmation of attendance via Telegram to HR. Leads submit to Active Collab platform with a different template. The business team reviews the lead's submission. HR reviews the submission. 	Incidental
Onboarding	<ol style="list-style-type: none"> HR creates accounts one by one (requiring 5 accounts for each new employee), so 5 tasks are needed. 	Every time when there is a new employee

- HR inputs new employee data one by one into each platform (5 different platforms), so 5 tasks are needed.
- HR creates a task in Active Collab.
- The new employee tries every account created by HR.
- The employee reports the trial results on the Active Collab.
- HR checks the report.

- The participants involved in every business process
 - Attendance: All employees.
 - Bonus Process: Leader and HR Department. Leader is a specific role of users. The HR Department is a group of users with the same role.
 - Onboarding: HR and the new employee.
- Information plays a significant role in those business processes. For attendance, it will give information about attendance records. In the bonus process, bonus category, amount of bonus, personal employee, clear description, all of which are necessary for rewarding employees. For the onboarding process, new hire data is important to run this process. Not only that, the evidence of completing tasks from new hires is also important.
- Technology used to accomplish those business processes are Camunda Modeler, Camunda Engine, Telegram Bot, Email, and website. Camunda Modeler is a tool for creating business processes and managing workflow [15]. Telegram Bot and Email are primary communication tools used by organizations. A website is a platform where the system is implemented.

Two key observations emerged:

- High task fragmentation across platforms (e.g., Active Collab, spreadsheets, email), contributing to processing delays.
- Lack of standardization in workflows, especially for bonus approval and onboarding, which increased variability and error rates.

2.2. Business Process Supervision

In the supervision phase, each target process was modelled using Camunda Modeler, producing executable BPMN diagrams integrated with Camunda Tasklist and Telegram Bot. The Camunda BPMN engine provided a live, testable execution environment, enabling stakeholders to simulate real-time interactions and provide immediate feedback.

This iterative process facilitated alignment between model designers and end-users, a key principle in Agile BPM practices [6].

2.3. Business Process Assessment

In the third phase, the business process assessment is conducted by observing the participants when they are operating the new system [16]. After that, they are interviewed to evaluate three critical aspects in business process assessment: time, quality, and flexibility [14]. The time aspect defines the quantity of user tasks reduced, hence influencing the processing speed needed by the user in a business process. Quality indicates the level of precision of information and the user's convenience in executing business processes. Flexibility is a measure of the degree of customization or template options necessary in a business process.

3. Results and Discussions

The result of business process supervision is described at 3.1-3.4 subsection. The last phase, business process assessment is described at 3.5 subsection.

3.1. Attendance BPMN Design

Attendance business process will replace a traditional way to recap an employee's attendance. By using Attendance BPMN at Figure 2, HR will not ask manually who is attending or absent. Then, they count and input the data into the database.

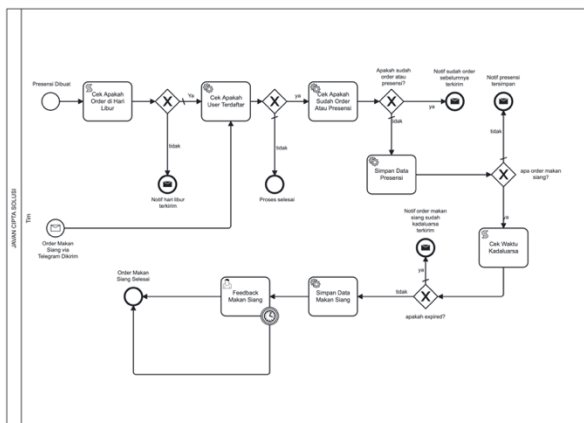


Figure 2. Attendance BPMN Design

The attendance process in Figure 2 can be completed through two methods: via the website or the Telegram bot. When using the website, employees first log in using their credential accounts. After logging in, they fill out the attendance form provided on the site. The system then records the employee's response along with an attendance variable that is used for giving extra salary. Upon successfully completing the process, a Telegram bot sends a notification to the employee confirming their attendance submission.

Alternatively, employees can complete the attendance process directly through the Telegram bot. They start by initiating a chat with the bot using a predefined command prompt. The bot responds with a set of options, and the employee selects the appropriate one. Like the website method, the system records the employee's response and the attendance variable for giving extra salary. The bot then provides a response and confirmation notification to the employee.

3.2. Bonus BPMN Design

Reviewing bonus is one of HR's jobs to make approval from an application. This job takes a lot of time due to there being no reference form. Each leader has their own style for bonus applications. The Bonus BPMN in Figure 3 will solve this problem. The HR's can more easily review the leader's application.

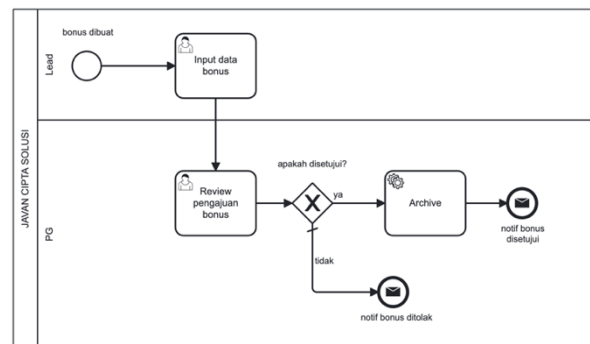


Figure 3. Bonus BPMN Design

The process begins when a leader initiates the bonus request by selecting the appropriate bonus category. They then fill out a bonus form through the website. Once submitted, the HR department reviews the form. If the application is approved, the system records the necessary data and generates a project variable, which is later used to calculate the extra salary. The Telegram bot then sends a notification to the employee confirming the approval. On the other hand, if the application is rejected, the Telegram bot promptly sends a rejection notification to inform the employee.

3.3. Onboarding BPMN Design

Before new hires are ready to begin their jobs, they need access to four essential accounts (FreeIPA, GitLab, Taiga, and Collab) which are used by the organization to manage the employee's activities. Each of these accounts serves a specific purpose for both the organization and the employee. The responsibility of creating these accounts falls on HR, but the process can be time consuming as it involves manually setting up accounts across different platforms. To streamline this workflow, the Onboarding BPMN shown in Figure 4 is designed to optimize and automate the process.

The onboarding process begins with HR entering the new hire's data into the website. Based on this input, the system automatically generates all four required accounts. Once the accounts are successfully created, the system sends a notification to the new hire informing them of the accounts. The new hire is then tasked with logging into each account individually and uploading proof of access to the website. Finally, the system records the submitted proofs and sends an email notification to confirm that the onboarding process is complete.

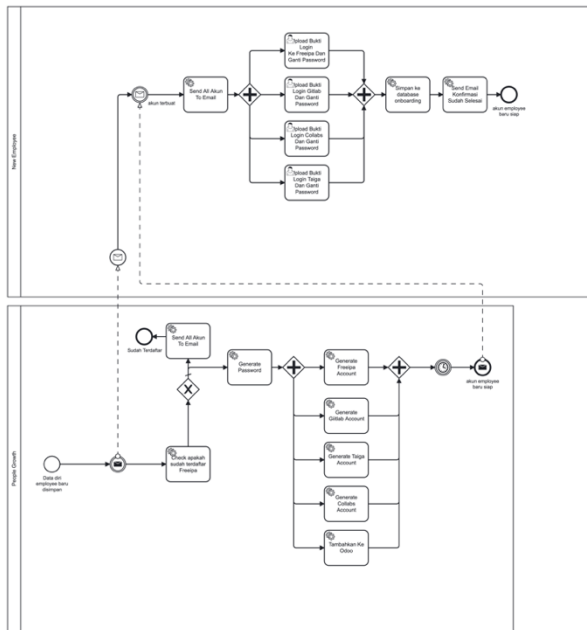


Figure 4. Onboarding BPMN Design

3.4. Implementation

The architecture design in Figure 5 facilitates users to use through two distinct channels, a web application and a bot. These channels are designed to accommodate user needs. The web application is used as a medium for handling complex tasks, while the bot can be used for handling simple tasks.

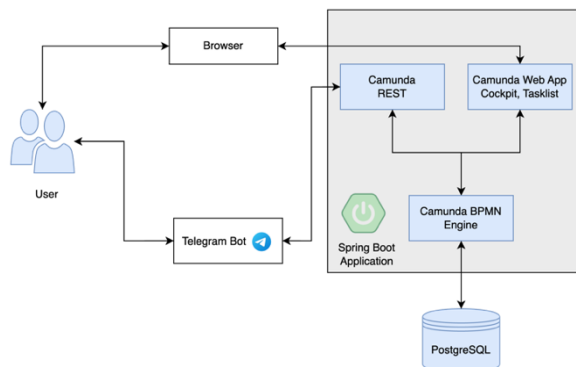


Figure 5. Architecture Design

3.4.1. Web Application

Implementing this channel involves programming activities. Based on Figure 5, this is due to the Camunda BPMN Engine embedded in the Java Spring Boot Application. To demonstrate how the BPMN workflow is integrated, the Bonus BPMN design in Figure 3 is used as an example.

The actor involved at the start event Figure 3 is the lead. The lead submits the bonus via the website by initially selecting the bonus category. The illustration can be seen in Figure 6.

Figure 6. Start Event Bonus

The bonus business process has 2 user tasks: Input data bonus and Review bonus. Both user tasks utilize form reference. This form is built with custom HTML to collect input from the actor lead and HR. The interface is shown in Figure 7 and Figure 8.

Figure 7. Interface Input Data Bonus

Figure 8. Interface Review Bonus

Archived is a service task within the bonus business process. This service executes the business logic by invoking Java code. The Message End Event is applied

to finish the flow in the bonus business process while sending notification relating to the results of this business process. This notification is sent over the Telegram bot as a medium to the lead. The Execution Listeners, implemented as a Groovy Script, manages the notification delivery process shown in Figure 9. The received notification for a leader is demonstrated in Figure 10.

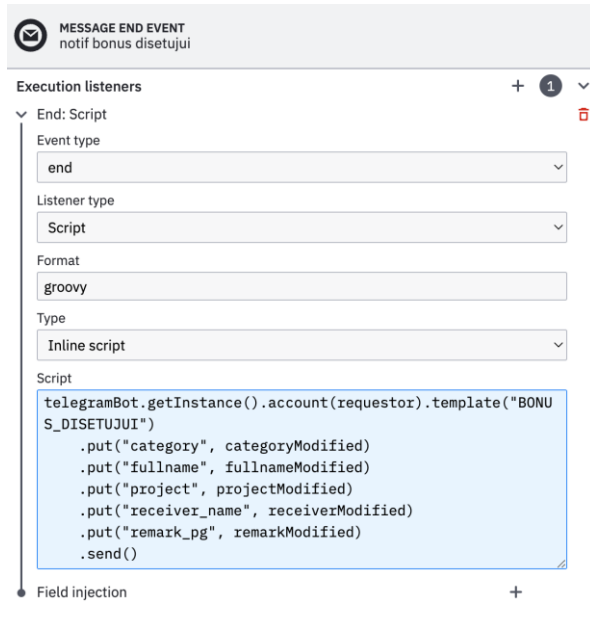


Figure 9. Message End Event



Figure 10. Notification Sent

3.4.2. Telegram Bot

In addition to the web interface, the system utilizes the Camunda REST to enable integration with a Telegram Bot. This integration allows the connection with Camunda BPMN Engine as shown in Figure 5. Through this process, the Telegram Bot can serve as an interface for handling input and output processing inside a business process.

To illustrate this functionality, the Attendance BPMN in Figure 2 is used as an example. This process demonstrates how employee attendance can be managed directly through the Telegram Bot. However, the Standard Operational Procedure (SOP) sets restrictions in the usage of Telegram Bot for

attendance process, requiring team to work in office and lunch in the office.

Attendance BPMN offers two types of start events in the business process design: start event and message start event. The message start event begins the process via Camunda Rest. It is necessary to define their name for triggering Message Start Event to start the process of Attendance BPMN, as displayed in Figure 11. After the message starts event's name is defined, it can be trigger using Camunda Rest. Camunda Rest will be invoked using service class in the Java application. It requires input from an employee that will be sent using a Telegram bot, as illustrated in Figure 12.

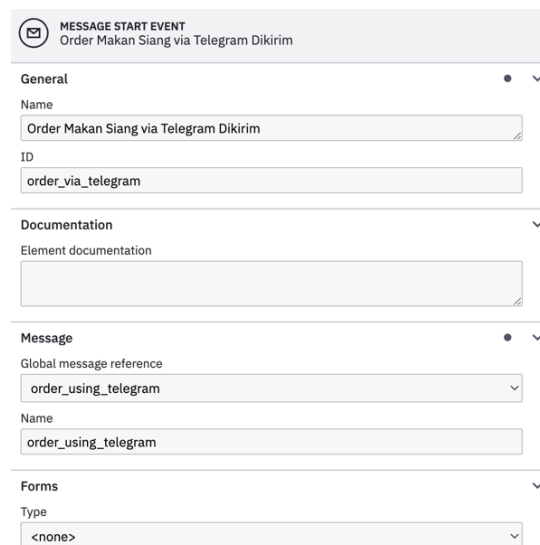


Figure 11. Message Start Event



Figure 12. User Input via Telegram Bot

3.5. Business Process Assessment

Evaluation procedure for each business process using interviews evaluates three criteria: time, quality, and flexibility. The time aspect defines the quantity of user tasks reduced, hence influencing the processing speed

needed by the user in a business process. Quality indicates the level of precision of information and the user's convenience in executing business processes. Flexibility is a measure of the degree of customization or standard template in a business process.

Table 3. Comparison of User Tasks

Business Process	User tasks before	Number of user tasks before	User tasks after	Number of user tasks after	Degree of customization
Attendance	<ol style="list-style-type: none"> 1. Employee sends a confirmation of attendance via Telegram to HR. 2. HR recorded in the spreadsheet file. 3. HR provides information about the lunch menu. 4. HR conducts a lunch poll. 5. Employees fill out the poll. 6. HR records the polling results. 	6	-	0	Low
Bonus Processing	<ol style="list-style-type: none"> 1. Employee sent a confirmation of attendance via Telegram to HR. 2. Leads submit to Active Collab platform with a different template. 3. The business team reviews the lead's submission. 4. HR reviews the submission. 	4	<ol style="list-style-type: none"> 1. HR reviews the bonus submission. 	1	Low
Onboarding	<ol style="list-style-type: none"> 1. HR creates accounts one by one (requiring 5 accounts for each new employee), so 5 tasks is needed. 2. HR inputs new employee data one by one into each platform (5 different platforms), so 5 tasks is needed. 3. HR creates a task in Active Collab. 4. The new employee tries every account created by HR. 5. The employee reports the trial results on the Active Collab. 6. HR checks the report. 	14	<ol style="list-style-type: none"> 1. HR inputs new employee data. 	1	Low

The evaluation of the business process will be conducted for employees and teams that use the system every day. The questions are below:

1. Time
Has the duration of doing a task is reduced?
How long does it take?
2. Quality
How's the experience of using the new system?
3. Flexibility
Is the system more standardized?

Based on the interview results, respondents indicated a high degree of satisfaction with the new business process using the Camunda BPMN Engine and Chatbot. Among the three aspects studied: Time, Quality, and Flexibility, several responds have been discovered as follows:

1. Employees:
"With the new presence system, things are getting easier and faster. It helps me to do the work much more productively. I can already be present without having to open a browser and type web address for presence. All I have to do is chat on Telegram."
2. Leader:
"In general, this system is very helpful because it speeds up work that used to take a long time. Using this system, it makes a possibility to monitor and reevaluate bonus that have already been submitted."
3. HR Team:
"I'm personally happy with this system, if there's a lot of people onboarding not overwhelmed. In the use of this system, I feel faster in preparing accounts for new hires."

The interview results are summarized in **Error! Reference source not found.** and **Error! Reference source not found.** Analysis of the two tables indicated that the implementation of the Camunda BPMN Engine has effectively reduced the number of tasks for users. The system has standardized the business process with the Camunda BPMN Engine. The implementation of Camunda BPMN Engine and Telegram Bot has been proven to speed up the workflow.

Table 4. Comparison of Time Needed

Business Process	Time needed before	Time needed after
Attendance	3-5 Minutes (Slow)	Less than 2 minutes (Fast)
Bonus Processing	At least 7 Days (Slow)	Less than one day (Fast)
Onboarding	15-20 Minutes (Slow)	Less than 5 minutes (Fast)

3.6. Discussion

3.6.1. Efficiency and Task Reduction

The redesigned processes show a significant reduction in manual effort and process duration. As summarized in Table 3 and Table 4, the onboarding process, for example, decreased from 14 manual tasks to just 5, and completion time dropped from 15–20 minutes to under 5 minutes. These findings align with Mohamed et al. [11], who demonstrated that automating HR tasks using RPA reduced transactional overheads and improved response time. However, while RPA focuses on individual task automation, our approach emphasizes end-to-end workflow orchestration through BPMN, offering better traceability and process governance.

3.6.2. Standardization and Accuracy

Prior to the redesign, bonus approval processes were conducted through unstructured inputs on various platforms, leading to inconsistencies and inefficiencies. The introduction of structured BPMN workflows and form-based inputs reduced ambiguity and improved data accuracy. This supports the conclusions of Tsakalidis and Vergidis [4], who highlighted that process standardization—achieved through modeling—enhances transparency and quality. Unlike their generic modeling approach, this study provides a deployable and executable model, enabling real-time validation and feedback via the Camunda engine.

3.6.3. Usability and User Experience

Feedback from HR staff, team leads, and employees emphasized improvements in ease of use and task clarity. The integration of a Telegram bot for attendance and notifications provided a lightweight user interface that reduced friction, particularly for routine tasks. This aligns with findings from Taule et al. [8], who noted that chatbot interfaces support operational agility and user engagement in HR settings. However, our approach goes further by linking the chatbot to an automated decision layer (Camunda), ensuring that user actions trigger backend workflows without requiring manual HR intervention.

3.6.4. Adaptability and Organizational Fit

One of the central tenets of the Agile Business Process and Practice Alignment Methodology (BPPAM) is continuous alignment between business practices and system implementation. By simulating the process through Camunda Tasklist and collecting feedback iteratively, the system design evolved organically with user needs. This approach reflects agile BPM principles discussed by Schmitt and Hörner [6], who argued that adaptability is achieved not only by

modeling but also by fostering collaboration between stakeholders during system design and validation.

4. Conclusion

Implementing Business Process Model and Notation (BPMN) through the Camunda BPMN engine and chatbot technology significantly improves the efficiency of human resource (HR) processes. By automating tasks such as attendance tracking, bonus management, and employee onboarding, organizations can reduce manual efforts, increase task speed, and enhance the accuracy of operations. The integration of the Agile Business Process and Practice Alignment Methodology (BPPAM) further ensures that HR processes remain adaptable and responsive to business needs.

Theoretically, this study reinforces the relevance of BPMN and chatbot integration in advancing agile process management frameworks and contributes to the understanding of automation within human-centric workflows. Practically, the proposed model serves as a guide for HR departments aiming to digitize and standardize their operations.

Despite the effectiveness of the automation framework, technical limitations remain in the current implementation. The user interface was still limited to the default Camunda Web App, resulting in a relatively basic visual presentation. To enhance user experience, future implementations can leverage the Camunda REST API integrated with a custom frontend, enabling the development of more interactive web or even mobile applications. This emphasizes the flexibility of Camunda as a cross-platform workflow engine and opens up opportunities for developing more engaging and responsive systems tailored to user needs.

In conclusion, this research not only offers an efficient business process automation framework for HR contexts but also sets a foundation for broader and more flexible system development in the future.

Reference

- [1] J. Zhang and Z. Chen, "Exploring human resource management digital transformation in the digital age," *Journal of the Knowledge Economy*, vol. 15, no. 1, pp. 1482–1498, 2024, [Online]. Available: <https://link.springer.com/article/10.1007/s13132-023-01214-y>
- [2] V. V. Velikorossov, S. A. Filin, E. V. Genkin, M. I. Maksimov, M. A. Krasilnikova, and O. G. Rakauskiyene, "HR systems as a new method for the automatization of business processes in organization," in *2nd International Conference on Pedagogy, Communication and Sociology (ICPCS)*, 2020, p. 415. [Online]. Available: <https://doi.org/10.12783/dtssehs/icpcs2020/33905>
- [3] G. Tsakalidis and K. Vergidis, "Business Process Redesign: A Systematic Review of Evaluation Approaches," *Decision Making: Applications in Management and Engineering*, vol. 7, no. 1, pp. 79–98, 2024, [Online]. Available: <https://doi.org/10.31181/dmame712024889>
- [4] S. Majumder and A. Mondal, "Are chatbots really useful for human resource management?," *Int J Speech Technol*, vol. 24, no. 4, pp. 969–977, 2021, [Online]. Available: <https://link.springer.com/article/10.1007/s10772-021-09834-y>
- [5] M. ER, A. Deviana, and I. Nurkasanah, "Can Business Process Design Space Help Students Generate Innovative Process Redesign Ideas?," in *Business Process Management: Blockchain, Robotic Process Automation, Central and Eastern European, Educators and Industry Forum*, C. Di Ciccio, W. Fdhila, S. Agostinelli, D. Amyot, H. Leopold, M. Krčál, M. Malinova Mandelburger, G. Polančič, K. Tomičič-Pupek, K. Gdowska, T. Grisold, P. Sliž, I. Beerepoot, R. Gabryelczyk, and R. Plattfaut, Eds., Cham: Springer Nature Switzerland, 2024, pp. 396–405.
- [6] D. T. Avila, E. S. Sanchez, M. Fantinato, G. Polančič, and L. H. Thom, "Investigating business process changes: a framework for identifying outdated process models," *Business Process Management Journal*, vol. 31, no. 3, pp. 904–927, Jan. 2025, doi: 10.1108/BPMJ-11-2023-0863.
- [7] B. Saha, "Implementing Chatbots in HR Management Systems for Enhanced Employee Engagement," *J Emerg Technol Innov Res*, vol. 8, pp. 1625–1638, Aug. 2021.
- [8] Y. Jitgosol, S. Kasemvilas, and P. Boonchai, "Designing an HR Chatbot to Support Human Resource Management SUIC's 5th International Conference Designing an HR Chatbot to Support Human Resource Management," no. December 2019, 2019, [Online]. Available: <https://www.researchgate.net/publication/341710025>
- [9] T. Taule, A. Følstad, and K. I. Fostervold, "How Can a Chatbot Support Human Resource Management? Exploring the Operational Interplay," *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, vol. 13171 LNCS, pp. 73–89, 2022, doi: 10.1007/978-3-030-94890-0_5.
- [10] M. N. Sakib, M. Salehin, M. Younus, M. A. Al-Omari, M. Sahabuddin, and M. I. Tabash, "The ChatGPT and the future of HR: A critical review on the benefits and challenges of AI chatbots in human resource management," *Multidisciplinary Reviews*, vol. 7, no. 8, 2024, doi: 10.31893/multirev.2024136.
- [11] E. E. Egorov, T. E. Lebedeva, M. P. Prokhorova, T. N. Tsapina, and A. A. Shkunova, "Opportunities and Prospects of Using Chatbots in HR BT - Scientific and Technical Revolution: Yesterday, Today and Tomorrow," E. G. Popkova and B. S. Sergi, Eds., Cham: Springer International Publishing, 2020, pp. 782–791.
- [12] D. Rahmani and H. Kamberaj, "Implementation and Usage of Artificial Intelligence Powered Chatbots in Human Resources Management Systems," *IJBS Paper*, no. May, 2021, [Online]. Available: <https://www.researchgate.net/publication/351345726>
- [13] P. V. Martins and M. Zacarias, "An agile business process improvement methodology," in *Procedia Computer Science*, 2017, pp. 129–136. [Online]. Available: <https://doi.org/10.1016/j.procs.2017.11.018>
- [14] H. A. Reijers and S. L. Mansar, "Best practices in business process redesign: an overview and qualitative evaluation of successful redesign heuristics," *Omega (Westport)*, vol. 33, no. 4, pp. 283–306, 2005, [Online]. Available: <https://doi.org/10.1016/j.omega.2004.04.012>
- [15] G. David, D. R. Zmaranda, R. Ş. Györfödi, and C. A. Györfödi, "Exploring the Impact of Workflow Engines on Business Process Management in Enterprise Applications. A case-study: Camunda," in *2023 17th International Conference on Engineering of Modern Electric Systems (EMES)*, 2023, pp. 1–4. [Online]. Available: <https://doi.org/10.1109/EMES58375.2023.10171706>
- [16] W. Aljedaibi and A. M. Munef, "IMPACT OF USER EXPERIENCE (UX) FOR THE EVALUATION AND IMPROVEMENT OF THE ORGANIZATION WORKFLOW," *International Journal for Quality Research*, vol. 16, no. 4, 2022, [Online]. Available: <https://doi.org/10.24874/IJQR16.04-17>