



Analysis of the Efficiency of Vehicle Insurance Claim Business Processes Using a Process Mining Approach: A Case Study

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Abstract

The insurance claim submission process is one of the most critical components in the insurance industry, as it directly impacts both customer satisfaction and the operational efficiency of the company. A smooth and efficient claim process not only builds trust and loyalty among customers but also enhances the company's ability to manage resources effectively. However, inefficiencies or bottlenecks in this process can lead to dissatisfaction, increased costs, and potential reputational damage. This study aims to analyze the efficiency of the vehicle insurance claim process at PT. X by leveraging the Process Mining approach, specifically utilizing the PM2 methodology to identify, evaluate, and address process inefficiencies. The research uses event logs collected from the company's information system, providing detailed and objective data on the sequence and duration of activities involved in the claim process. By applying process mining techniques, this study uncovers key bottlenecks such as prolonged waiting times, deviations from standard operating procedures (SOPs), and unnecessary process loops that hinder optimal performance. Additionally, the research explores the root causes of these inefficiencies, including potential gaps in resource allocation, communication breakdowns, and outdated process workflows. The findings of the study offer significant insights for improving the insurance claim process. Evidence-based recommendations are proposed, such as the implementation of automated decision-making tools, improved monitoring systems for SOP compliance, and streamlining of redundant steps within the workflow. These recommendations aim to not only reduce processing time and enhance operational efficiency but also improve the overall customer experience.

Introduction

In the era of globalization, a country's progress is often marked by an increase in the availability of goods and services, including motor vehicles. Motor vehicles serve as durable consumer goods and a means of transportation that supports community mobility. In Indonesia, which consists of 38 provinces, the number of motor vehicles has been rising significantly every year. Based on data from the Central Statistics Agency (BPS), between 2017 and 2021, the number of motor vehicles in Indonesia increased by 23,069,865 units, from 118,922,708 units in 2017 to 141,992,573 units in 2021.

The growing number of motor vehicles facilitates daily activities but also poses various risks, such as accidents, fires, theft, and others. Accidents, for instance, can result in physical, financial, and psychological losses for both drivers and passengers (Amoadu, 2023; Zhang et al., 2022; Bazaluk et al., 2022). The primary causes of accidents in Indonesia are predominantly human factors, rather than vehicle or environmental factors (Luthfiyani & Ahyudanari, 2021).

The losses incurred from such accidents can be mitigated through motor vehicle insurance, which provides coverage for physical damages to vehicles (Suliyanto et al., 2021; Ellis et al., 2022; Pramudya et al., 2025; Sugarman, 2021).

However, managing motor vehicle insurance in Indonesia still faces numerous challenges, particularly in customer service (Susanto, 2022; Jamaluddin et al., 2022). One of the leading motor vehicle insurance companies, PT. X, utilizes MySQL-based software to integrate its information systems. Despite this, the company continues to receive numerous customer complaints about delays in the claim submission process and the resolution of complaints. According to PT. X's complaint records, the time required to respond to and resolve customer claims often exceeds expectations, with an average complaint resolution time of more than 10 days.

These service delays not only cause inconvenience for customers but also potentially diminish customer satisfaction and loyalty (Udeh, 2024; Chigwende & Govender, 2021; Bakir et al., 2025). Therefore, an in-depth evaluation of insurance companies' systems and customer service processes is necessary to improve service efficiency and effectiveness. This study aims to analyze the challenges faced in managing motor vehicle insurance services in Indonesia, focusing on claim and customer complaint management, and to provide strategic recommendations for enhancing service quality.

Previous studies, such as those by Suriadi et al. (2013), Heidari and Assy (2016), and Mansur et al. (2024), have demonstrated the potential of process mining techniques to identify challenges and provide actionable recommendations in improving efficiency and service quality across various domains, including insurance and healthcare. Suriadi et al. (2013) examined claim processes in one of Australia's largest insurance companies, revealing inefficiencies in simple claim processing caused by unstructured workflows. Their study demonstrated how event log analysis could identify dominant process paths, bottlenecks, and structural inefficiencies, leading to data-driven recommendations for process optimization.

Heidari & Assy (2016) applied process mining to customer journey data in the Dutch Employee Insurance Agency (UWV). The findings highlighted inefficiencies in communication and payment systems, emphasizing the importance of user behavior analysis in enhancing service delivery. Mansur et al. (2024) explored healthcare pathways using the Indonesian Health Insurance dataset. Their study revealed significant variations in breast cancer treatment sequences and highlighted the applicability of process mining in optimizing clinical and administrative workflows.

While these studies have significantly advanced the field, several research gaps remain: 1) Geographical Context: Existing studies focus on developed countries like Australia and the Netherlands, with limited attention given to developing economies like Indonesia, where unique operational and cultural challenges exist; 2) Type of Insurance: Research on motor vehicle insurance, a critical segment in Indonesia, is underexplored, particularly in the context of claims processing; 3) Compliance with SOPs: While prior studies highlight process inefficiencies, few evaluate compliance with Standard Operating Procedures (SOPs), which is critical for ensuring consistent and reliable service delivery; 4) Localized Dataset: Most studies utilize datasets from well-integrated digital infrastructures, leaving a gap in understanding how process mining can be applied to less digitized systems, such as those in Indonesia's motor vehicle insurance sector.

This study aims to address these gaps by utilizing localized datasets and process mining techniques to analyze and optimize motor vehicle insurance claim processes in Indonesia.

Specifically, the study focuses on: 1) Mapping the current claim process model to understand its structure and performance; 2) Identifying bottlenecks and deviations from SOPs to highlight inefficiencies and compliance issues; 3) Providing data-driven recommendations to improve process efficiency and enhance customer satisfaction; 4) The paper is organized as follows. In the next section, the theoretical foundations will be explained, including a detailed discussion of Business Process Management (BPM), Process Mining (PM), and specific methodologies such as the Fuzzy Miner algorithm and dependency graph techniques. This section sets the foundation for understanding the tools and methods used in the analysis. Subsequently, the methodology employed in this study is outlined, focusing on the PM2 methodology. This includes stages such as planning, data extraction, processing, analysis, evaluation, and the implementation of recommendations.

Next, the results of the analysis are presented, highlighting key findings from the application of process mining techniques to event log data. This section discusses identified bottlenecks, deviations from Standard Operating Procedures (SOPs), and inefficiencies within the insurance claims process. Following that, the discussion section delves into the root causes of identified issues, using a 6M cause-and-effect diagram. This part also provides actionable recommendations, such as process simplification, automation, and organizational role clarification, aimed at enhancing efficiency and customer satisfaction. Finally, the conclusions summarize the findings and implications of the study, offering insights into the practical applications of process mining in the insurance industry and directions for future research.

Literature Review

Business Process Management (BPM) is a set of approaches for identifying, designing, executing, monitoring, and improving business processes. Effective business processes enhance efficiency, compliance, and service quality (Dumas et al., 2018). In the insurance industry, BPM focuses on optimizing insurance claim processes to be more responsive to customer needs. Process Mining is a data-driven technique used to analyze, understand, and improve business processes by utilizing event logs from information systems. These event logs record activities performed during process execution, containing attributes such as case ID, activity type, and timestamp. By analyzing this data, process mining enables organizations to visualize actual processes, identify deviations, and enhance operational efficiency. It also helps organizations understand the differences between planned processes and their real-life execution (Van der Aalst, 2016; Perusso & Leal, 2022; Maheshwari et al., 2023). PM has been applied across various industries, including insurance, to enhance operational efficiency (Suriadi et al., 2013). The output of this study focuses on two key techniques in process mining: process discovery and conformance checking. Process discovery generates a visual model of the actual process based on event logs, revealing the true flow and structure of activities. Conformance checking evaluates the alignment between the discovered process model and the predefined process model, identifying any deviations or discrepancies for further analysis.

Process Discovery is a key technique in process mining that aims to build process models based on event logs without prior knowledge of the process. This technique takes log data as input and generates a visual process model representing the flow of activities and their relationships. The model depicts the actual process, including alternative paths and potential bottlenecks. With process discovery, organizations can identify undocumented or recurring steps, gaining a deeper understanding of the process (Augusto et al., 2018; Elleuch, 2021).

Conformance Checking is another technique in process mining that focuses on comparing the expected process model with the actual process data from event logs. This technique is used to measure the alignment between process design and execution, helping organizations detect

deviations or discrepancies. The results of conformance checking can be utilized to ensure compliance with regulations, identify improvement opportunities, and reduce operational risks. For example, organizations can pinpoint steps in the process that deviate from internal policies or standard procedures (Van der Aalst, 2016; Tetteh et al., 2024).

Process Mining Algorithms (Dependency Graph and Fuzzy Miner)

Dependency Graph: A visualization technique in PM that represents the direct relationships between activities in a process. The arcs between activities indicate the frequency and duration of transitions (Dumas et al., 2018).

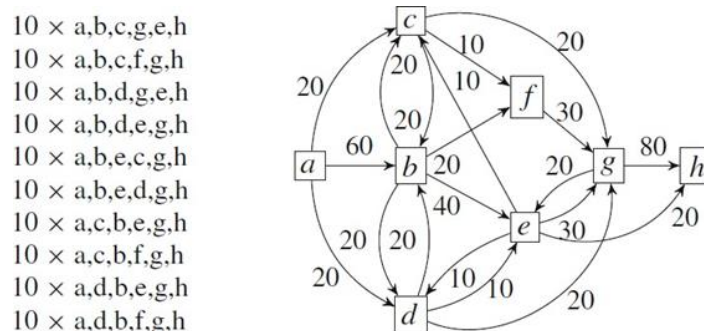


Figure 1. Event Logs and Corresponding Dependency Graph

Fuzzy Miner: This algorithm is designed for unstructured and complex processes. It simplifies process models by grouping activities based on significance and correlation, resulting in a more analyzable process map (Günther & Van der Aalst, 2007).

Apromore

Apromore is an open-source platform for business process analysis using process mining. It supports process modeling using BPMN, performance analysis, and bottleneck identification. With flexible data integration capabilities and APIs, Apromore provides advanced solutions for data-driven process improvement across various organizations, including insurance companies (La Rosa et al., 2019; Andrews, 2023).

Framework Diagram

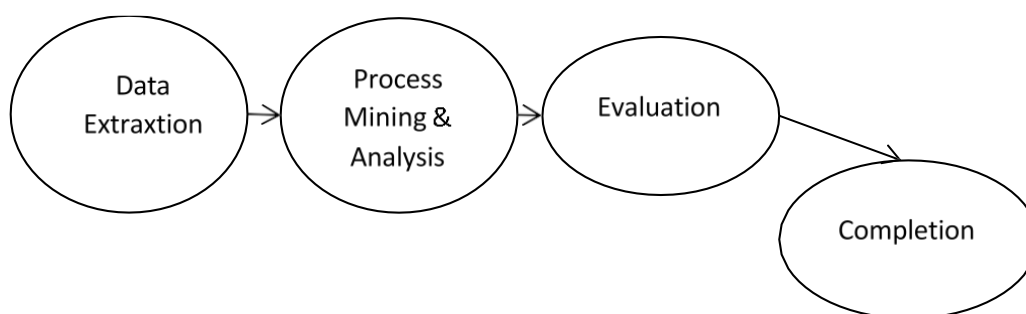


Figure 2. Framework Methodology Diagram.

Methods

This study adopts the PM2 (Process Mining Project Methodology), implemented over the period from January 2024 to June 2024. The methodology comprises six core stages: (1) project planning, (2) data extraction, (3) data processing, (4) process analysis, (5) evaluation, and (6) implementation of recommendations.

During the data extraction phase, event logs are obtained from the information system of PT. X, which records the entire lifecycle of claim processing—from initiation to completion. These event logs contain crucial information such as the types of activities recorded (e.g., start and end timestamps of activities, user-initiated actions like approvals or data entry, as well as system-generated logs), time-related data (timestamps), and potential issues such as data incompleteness or inconsistencies.

The characteristics of the extracted event logs include the timeframe covered by the records, the completeness and granularity of attributes (such as case ID, activity name, resource, and timestamp), and the relevance of event types in the context of the business process under study. Prior to analysis, the data undergoes preprocessing to ensure quality and consistency. These steps involve timestamp synchronization to standardize the time format across records and the removal of duplicate entries that could distort the process representation.

For the process analysis, this study applies process discovery techniques using the Fuzzy Miner algorithm, which helps visualize the process map and is particularly effective in managing complex and less structured workflows. In addition, conformance checking is conducted to assess how closely the actual process, as reflected in the event logs, aligns with the organization's established Standard Operating Procedures (SOPs). The outcomes of this analysis serve as the basis for the evaluation stage and for formulating recommendations to improve the efficiency and compliance of the business process.

Results and Discussion

Insurance Claim Process in PT. X

The current claim process at PTX begins with the First Notification of Loss, where customers report incidents causing loss via phone, email, or an online portal, initiating the claim. Customers then provide necessary supporting documents (e.g., police reports, photos, purchase proof) to validate the claim. The submitted documents are reviewed for completeness and supervisor approval before the claim is assigned to an adjuster who oversees its resolution. After evaluation, a claim decision is made to approve or reject the claim based on the evidence and policy terms. If approved, administrative steps like financial adjustments are completed (set reverse) to ensure proper payment processing. The approved payment is sent to the customer as compensation, and the claim is officially closed once all administrative tasks are finalized and documented.

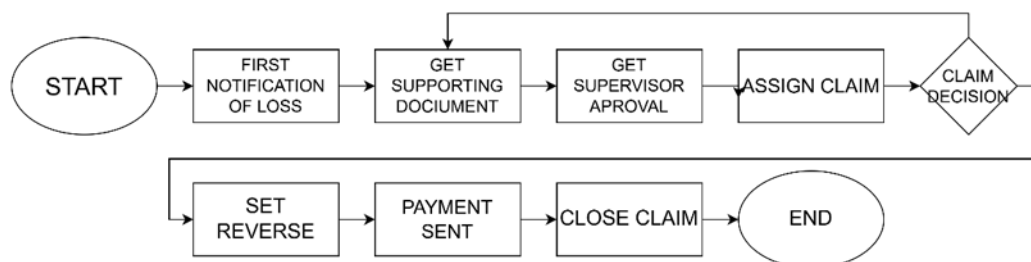


Figure 3. Insurance Claim Process in PT. X

Data Collection and Processing

Event log data from the MySQL application of the insurance company PT. X is extracted for analysis. The data includes key attributes such as case ID, activity name, start timestamp, and finish timestamp. The preprocessing steps involved are: 1) Duplicate Removal: Ensuring there are no repeated entries; 2) Format Normalization: Standardizing date formats and

other attributes; 3) Data Transformation: The data is converted into CSV format for processing on the Apromore platform. The data period used spans from April 2020 to May 2023, covering 24,288 insurance claim cases.

Process Discovery

The analysis using the Fuzzy Miner algorithm resulted in the discovery of the main process map, as shown in Table 1. The majority of cases (90.66%) follow the standard path according to the SOP (variant 1), but there are 15 variants in total. The process map visualization reveals the complexity of additional paths, which contribute to delays in certain cases.

Table 1. Data Log Claims

Description	Quantity
Total Case	24.288 Cases
Total Variant	15 Variants
Activity	8 Activity
Total Events	196 Events

The data analyzed in this study includes a total of 24,288 insurance claim cases processed during the research period. Each case represents a claim submitted by a customer, from the reporting of the loss to the claim settlement. During this process, 15 different process flow variants were identified. These variations represent the paths or combinations of steps followed by claims throughout the process, which may include deviations from the Standard Operating Procedure (SOP) or unplanned additional activities.

The claim process consists of 8 main activities that must be completed to resolve each case. These activities include claim report receipt, verification of supporting documents, supervisor approval, claim assignment, claim investigation, claim decision, payment disbursement, and claim closure. Each activity plays a crucial role in determining the overall efficiency and compliance of the process. Additionally, there are a total of 196 events recorded in this process, which include every specific interaction or activity performed within the system. These events provide valuable insights into the frequency of particular activities, such as document submission or approval processes, which may vary across cases and serve as a basis for further evaluation in the subsequent analysis.

Conformance Checking

This analysis measures the compliance of the process with the company's Standard Operating Procedures (SOP).

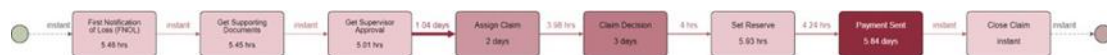


Figure 4. Distribution of Total Case Duration (Histogram of case durations for all claims)

Table 2. Claims with Duration Below 14 Days

Activity	Frequency	Average Duration (Hours)
Claim Report Receipt	1,200	20
Document Verification	1,100	40

Table 3: Claims with Duration Above 14 Days

Activity	Frequency	Average Duration (Hours)
Claim Report Receipt	600	28
Document Verification	700	72

(This table compares the activity duration between fast and slow claims)

Table 4. summarizes the actual process duration compared to the SOP

Process	SOP Time (Hours)	Actual Time (Hours)
First Notification of Loss	1	5.48
Get Supporting Document	1	5.45
Payment Sent	48	176.4

Table 2 and Table 3 provide a comparison of the claim process durations for cases completed within 14 days and those taking longer. In Table 2, claims with durations below 14 days show that the "Claim Report Receipt" activity takes an average of 20 hours, and "Document Verification" takes an average of 40 hours. In contrast, Table 3 highlights claims that take more than 14 days to process. Here, the "Claim Report Receipt" activity takes an average of 28 hours, and "Document Verification" takes 72 hours. This comparison illustrates the significant time differences between fast and slow claims, with slower claims experiencing much longer durations for the same activities.

Table 4 further contrasts the actual process durations with the Standard Operating Procedure (SOP) times. The "First Notification of Loss" activity is expected to take 1 hour according to the SOP, but the actual average time is 5.48 hours. Similarly, the "Get Supporting Document" activity should also take 1 hour according to the SOP, but it takes 5.45 hours on average. Most notably, the "Payment Sent" activity has a significant discrepancy, requiring an average of 176.4 hours compared to the SOP's 48 hours. These findings suggest substantial inefficiencies in the process, with many activities taking much longer than expected, which could contribute to delays in claim resolution.

Identification of Bottlenecks

The main bottlenecks identified are: 1) Payment Sent: Requires an average of 176.4 hours compared to the 48 hours stipulated by the SOP; 2) Get Supervisor Approval – Assign Claim: The waiting time between activities reaches 24.9 hours, much longer than the instantaneous expectation in the SOP.



Figure 5. Distribution of case durations with the majority of cases taking more than 14 days.

Improvement Recommendations

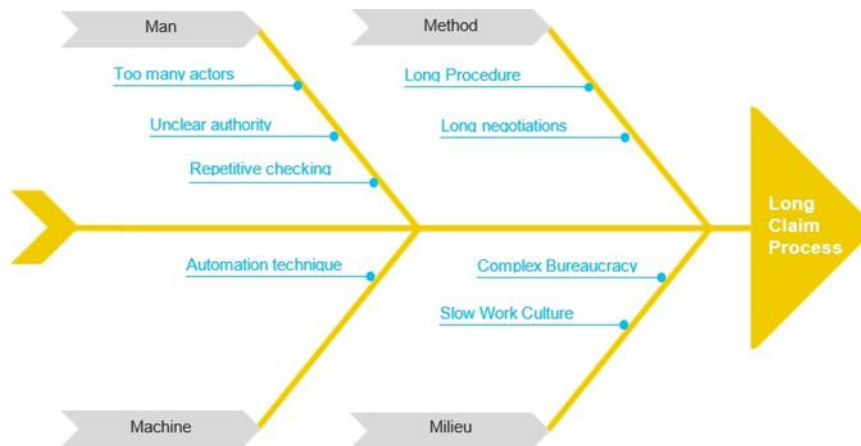


Figure 6. Cause effect diagram

The analysis of the insurance claims process at PT. X revealed several factors contributing to delays. One of the main causes is waiting for approval, particularly the time it takes for finance managers to obtain approval from claims managers before proceeding with payments. The delay is often caused by lengthy internal procedures and unclear authority, where there is confusion over who can approve claims, resulting in unnecessary delays. Another factor is the re-checking of final documents by claims managers. While this step is important for ensuring accuracy, it often slows the process due to repeated verification of documents that have already been checked. Furthermore, negotiation tactics used by the insurance company can also delay payments. These tactics include lengthy discussions regarding claim amounts and requests for additional information or clarifications, which extend the claims process.

A 6M cause-and-effect diagram was created to identify the root causes of these delays. The analysis highlighted several issues within the categories of people, technology, procedures, and the work environment. For example, the lack of clarity regarding authority for claim approvals and the excessive involvement of multiple actors in the process were identified as key factors that slow down decision-making. Additionally, the use of outdated technology and a lack of automation in the approval and verification steps further exacerbates the delays. Complex, repetitive internal procedures and prolonged negotiations with policyholders also contribute to the slow claims processing. The work environment, characterized by a bureaucratic structure and a culture that lacks urgency, further hinders the speed of claim resolution.

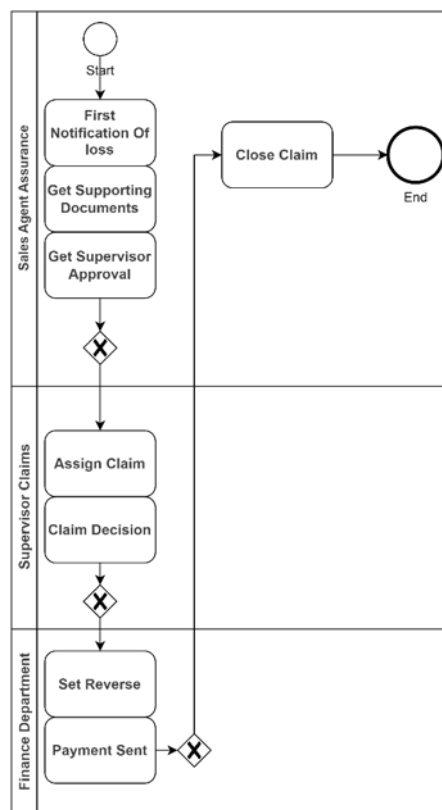


Figure 7. Business Process Simplification

To address these issues, several improvement recommendations were proposed, including simplifying internal procedures, clarifying authority roles, and reducing the number of actors involved in the process. Implementing automation technologies in the approval and verification stages would streamline the process and reduce manual work. Additionally, fostering a work

culture that prioritizes efficiency and creating clearer procedures would help speed up claim resolution and improve overall customer satisfaction.

Business Process Simplification: Streamline related activities into three main categories to enhance clarity and efficiency: 1) Claim Reporting and Validation; 2) Claim Assignment and Decision; 3) Payment Processing. **Process Automation:** Leverage technology to automatically validate data and reduce manual effort, speeding up the overall process. **Actor Reduction:** Minimize the number of actors involved in the process to streamline workflows and avoid unnecessary delays. **Reward and Punishment System:** Implement a system of incentives and consequences based on performance to motivate employees and improve process efficiency.

Recommendation Validation

The recommendations were validated through interviews with PT. X, which confirmed that these steps are relevant and feasible for implementation. The expected outcomes from these improvements include: 1) Reducing the average claim resolution time to under 14 days; 2) Improving customer satisfaction by enhancing the overall process efficiency. These improvements are designed to address the key bottlenecks identified and optimize the entire claims process, resulting in faster service and higher customer satisfaction.

This study aimed to analyze the insurance claims process at PT. X and identify the root causes of delays using process mining techniques. By leveraging event log data and conducting process discovery, we were able to uncover several key findings that explain the prolonged duration of claim settlements. The results show that while the majority of claims follow the standard operating procedure (SOP), a significant portion of claims experience delays due to internal inefficiencies and external factors such as the involvement of multiple actors and unclear authority.

While the process mining analysis effectively identifies 15 process variants, it lacks a critical examination of the underlying reasons for these variations. The study does not explore whether these deviations are driven by the complexity of specific claim cases, the influence of regulatory constraints, or inefficiencies in administrative procedures. Without such distinctions, the recommendations risk being too generalized and potentially misaligned with the actual causes of delay. A more refined analysis—categorizing variations by complexity, type of insurance product, or regulatory impact—would provide stronger evidence for targeted improvements.

One of the most significant delays observed in the process was the waiting time for approval, particularly the gap between the claims manager's review and the finance manager's approval. The complexity of internal procedures and unclear authority lines contribute to this delay. In many cases, claims approval is stalled due to confusion about who holds the final authority, despite the fact that the finance team should be able to proceed without awaiting further technical team approval. This situation suggests not only a procedural flaw but also a potential issue in organizational governance that should be reviewed and restructured. This highlights the need for clearer role definitions and delegation of authority within the process to eliminate bottlenecks.

The process mining analysis also revealed that repetitive steps, such as the re-checking of documents by claims managers, unnecessarily extended the claims duration. Even though these documents had already been validated in previous steps, the lack of automation and reliance on manual checks led to duplication of efforts, which slowed down the overall process. This finding suggests that the company could benefit from implementing automated document verification systems to ensure accuracy while reducing the time spent on manual checks.

Although the study highlights that 90.66% of claims follow the standard SOP path, it does not critically evaluate whether this high level of compliance actually results in efficient outcomes. Adherence to a standard process does not necessarily imply effectiveness, especially if the SOP itself is burdened with excessive approvals, redundant validations, or outdated documentation requirements. Without assessing the quality and efficiency of the standard process, the research risks reinforcing an inefficient framework rather than reforming it. Thus, future analysis should include a critical appraisal of the SOP itself to determine whether the structure and sequence of activities within the standard path contribute to delays.

Furthermore, negotiation tactics employed by PT. X, particularly around claim amounts, were found to add considerable delays. The process of negotiating the final claim amount with policyholders, along with requests for additional supporting documents, often prolonged the settlement. This is a common tactic used by insurance companies to reduce claim payouts, but it significantly impacts customer satisfaction and trust in the claims process. A more streamlined and transparent negotiation process could help resolve claims faster and improve customer satisfaction.

To enhance the diagnostic power of the analysis, a comparative assessment between the most and least efficient process variants should be conducted. This would help uncover best practices embedded in faster variants, and identify specific steps or actors that are consistently associated with delays. For instance, if certain claim types (e.g., low-value motor claims) consistently follow a shorter and more efficient path, while others (e.g., health or property claims) exhibit prolonged durations, the analysis can reveal where simplification or automation is most urgently needed. Such a comparative approach would allow PT. X to design targeted interventions for specific variants or claim categories rather than implementing blanket changes across all processes.

The 6M cause-and-effect diagram further highlighted key issues within the organizational structure, technology, methods, and work environment that contribute to delays. The lack of technological automation, coupled with bureaucratic processes, were identified as significant factors. The company's internal procedures were found to be overly complex and redundant, leading to inefficiencies and unnecessary waiting times. A more efficient and automated workflow could mitigate these challenges.

Addressing these issues requires comprehensive changes to PT. X's claims processing system. The recommendations, including simplifying procedures, clarifying authority, reducing the number of actors involved, and incorporating automation technologies, aim to improve process efficiency. However, future recommendations must be based on a more granular understanding of process deviations, SOP design inefficiencies, and performance differentials between process variants. By implementing these changes, PT. X could expect to reduce claim settlement times, enhance operational efficiency, and ultimately increase customer satisfaction. The study emphasizes the importance of process optimization, not only in terms of reducing delays but also in fostering a more responsive and customer-centric approach in the insurance industry.

Implications

This research contributes significantly to the field of process optimization and offers valuable insights for both academia and industry. By utilizing process mining techniques to analyze insurance claims processing, this study provides a robust framework for identifying inefficiencies and optimizing business processes in real-world settings. The findings highlight the importance of understanding the underlying causes of delays and inefficiencies in claims

processing, which is crucial not only for improving operational performance but also for enhancing customer satisfaction and loyalty in the competitive insurance sector.

From a theoretical perspective, this study contributes to the literature on process mining by demonstrating its practical application in the insurance industry. The research illustrates how process discovery and conformance checking can be leveraged to map out complex processes and uncover hidden bottlenecks that traditional process analysis methods may overlook. Furthermore, the use of the 6M cause-and-effect diagram enriches the understanding of process-related challenges by framing them in terms of human, technological, methodological, material, and environmental factors. This provides a comprehensive approach to diagnosing and addressing inefficiencies, which can serve as a reference for future studies in similar industries or organizational contexts.

In terms of practical applications, the findings of this study offer actionable recommendations for PT. X and similar organizations in the insurance industry. The identified bottlenecks and inefficiencies can guide the development of process improvement strategies, such as streamlining workflows, clarifying roles and responsibilities, and adopting automation technologies. These improvements not only have the potential to reduce claims processing time but also to enhance operational efficiency, reduce costs, and improve overall service delivery, ultimately leading to better customer satisfaction and competitive advantage.

For future research, there are several directions that can be explored. First, a comparative study could be conducted across different insurance companies to understand how process mining techniques can be applied in various organizational contexts, identifying commonalities and differences in the challenges faced by different firms. Second, future studies could focus on the integration of artificial intelligence (AI) and machine learning (ML) technologies with process mining tools to further automate and optimize insurance claims processing. Research could explore how these technologies could predict potential delays or risks in the claims process, enabling proactive interventions to streamline operations.

Moreover, future research could delve deeper into the impact of customer satisfaction on the claims process, specifically analyzing how delays and inefficiencies affect customer perceptions and loyalty. By conducting surveys or interviews with policyholders, researchers could gain insights into the relationship between claims processing time and overall customer experience, which could inform strategies to improve customer retention in the insurance industry.

Authors should explain the empirical and theoretical benefits, the economic benefits, and the existence of any new findings. The author may present any major flaws and limitations of the study, which could reduce the validity of the writing, thus raising questions from the readers (whether, or in what way), the limits in the study may have affected the results and conclusions. Limitations require a critical judgment and interpretation of the impact of their research. The author should provide the answer to the question: Is this a problem caused by an error, or in the method selected, or the validity, or something else?.

Conclusion

In this study, the application of process mining techniques to analyze the insurance claims process at PT. X has provided valuable insights into the inefficiencies and bottlenecks that impact the timely resolution of claims. Through process discovery and conformance checking, key issues such as delays in approval processes, redundant document checks, and lengthy negotiation tactics were identified. These findings underscore the importance of improving

process efficiency and clarity within organizational procedures to enhance both operational performance and customer satisfaction.

The research highlights several areas for improvement, including the simplification of processes, the introduction of automation, and a reduction in the number of actors involved in claims handling. Additionally, the study suggests that clarifying roles and responsibilities, alongside adopting more streamlined procedures, can significantly reduce delays and improve overall workflow

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