INCITEST
International Conference on Informatics Engineering, Science & Technology
UNIKOM

A Systematic Literature Review of Process Mining Adoption: Insights from Technology, Organization, Process, and Trust Dimensions

Rawiro Dias*, Harjanto Prabowo,Soepono Haryanto, Sani Muhammad Isa

Department Computer Science Department, Bina Nusantara University, Jakarta, Indonesia

*Corresponding E-mail: dias.rawiro@binus.ac.id

Abstract. Process mining adoption has received growing academic attention in recent years. This study presents the literature on process mining adoption. We divided the 34 papers found into four dimensions: Technology, Organization, Process, and Value/Trust. Based on the analysis of the findings, the implementation of process mining is not only a technical issue, but also requires organizational readiness, contextualization of the process, and mechanisms to build process awareness and trust in the results. Existing and cutting-edge technologies can expand the potential of process mining, such as ERP, AI, and Robotic Process Automation (RPA). Organizational factors and user trust play a crucial role in ensuring continued adoption. These findings are expected to provide a series of research directions for government organizations.

Keywords: adoption technology, bibliometric, BPM, literature review, process mining, VOSviewer

1. Introduction

Process mining can be used to improve business processes and ensure regulatory compliance (W. Van der Aalst, 2016). By understanding current business processes using process mining, organizations can measurably improve those processes (Ly et al., 2015; Reinkemeyer, 2022); Process mining provides organizational benefits in the form of more efficient business process analysis ((Garcia et al., 2019). Process mining is a relatively new and growing field of research, focusing on business process analysis (Dakić et al., 2018).

Currently, most process mining research focuses on technical aspects, such as developing and improving process mining techniques or methodologies to make them faster or more accurate (Grisold et al., 2021). Process mining is a new research discipline for discovering, monitoring, and improving actual processes. Research on process mining adoption has been extensive over the past years. This research encompasses organizational approaches, techniques, data collection, and approaches through process mining actors and end-users.

Meanwhile, the adoption of process mining technology in the government sector, particularly in developing countries, is still very limited. The use of advanced technology in government is quite slow, due to a rigid bureaucratic culture. The adoption of Information

Technology and Systems (IT/IS) enables state government agencies to provide quality public services and better respond to constituent needs, improve performance, and use resources and taxpayer dollars effectively. Much technology adoption research on emerging technologies has been conducted specifically in government because most technology adoption research focuses on business improvement in corporate organizations.

This paper aims to identify the state of the art in research on the adoption of process mining technology. The results are expected to provide insights and identify methods or frameworks that can be applied in the government sector.

2. Literature Review

2.1 Process Mining.

Process mining is a discipline that connects data science and process science by extracting, reconstructing, and analyzing “as-is” processes from event logs recorded by information systems, and then analyzing them with Business Process Management to improve business processes, identify bottlenecks, and predict outcomes (W. Van der Aalst, 2016; W. van der Aalst, 2020).

Process mining focuses on the operational processes within an information system that produce a product or service. Process mining is a generic approach that can be applied across all organizations and industries.(W. M. P. van der Aalst, 2022)

2.2 Adoption of Process Mining

When a person or organization does something different from before because they use or purchase a product, we can refer to it as adoption. The key point of adoption is when the idea, behavior, or product is new or innovative. After that, diffusion is possible.(Rogers et al., 2019).

Several theories and models of technology adoption have been developed by researchers. To understand how process mining can be adopted comprehensively, several theoretical approaches to adoption are needed (Taherdoost, 2018). The development of a process mining adoption model using TOE and DOI has been carried out but is still in its early stages (Berhold et al., 2021).

3. Method

3.1 Systematic Review

This research employs a literature review approach using a prism. This method enables researchers to evaluate the credibility of the methods and findings in previous studies and present research that contributes to the primary research findings. These findings are expected to provide direction and policy for the future.(Page et al., 2021)

The main objective of a systematic literature review is to analyze the current corpus of literature pertaining to a specific subject of research. This study utilizes data obtained from reliable scientific publications available through established journal databases Scopus to provide comprehensive results. The results obtained from the process of identifying the issue will be used as the foundation for improving the development of process mining adoption model.

3.2 Research Question

RQ1: What are the adopted theoretical frameworks by previous researchers for Process Mining adoption?

RQ2: What are the critical factors that may have an impact on the acceptance of Process Mining in the organization?

This study employed a search strategy to locate publications that are relevant to the research issue. The search was conducted using specific keywords, namely "Process Mining" and a combination of terms relating to adoption and acceptance, including "Adoption," "Adopted,"," implementation"," utilization" and "Acceptance". The inclusion and exclusion criteria are as follows: (i) Published in reputable international journals, books, and conference proceedings. (ii) Concentrated on the adoption, implementation and utilization of technology. (iii) Publication timeframe extends from 2013 until the year 2025 due to the process mining manifesto on 2012. (iv) open access. The query used for this research is as follows "PROCESS MINING" AND (adoption OR acceptance OR implementation OR adopted OR utilization).

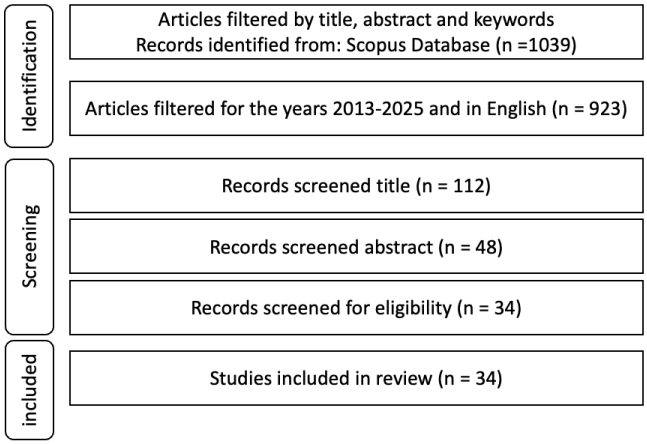

Figure 1. Execution of Phase (adoption from Prisma).

3.3 Studies Selection

The study used the Scopus database. The initial search yielded 1,039 articles. After applying inclusion and exclusion criteria, 923 articles were selected for review. A review of titles and abstracts identified 68 articles. Ultimately, 34 articles met the research objectives and were fully accessible (see Table 1). Figure 1 shows the steps involved in determining article selection.

Table 1. Previous Process Mining Adoption

Dimension	Study	Context/sector	Focus
Technology	(Helm et al., 2020)	Healthcare	Data engineering and clinical standards (SNOMED, ICD-10)
	(Accorsi & Lebherz, 2022)	General	Data availability and interoperability challenges
	(Stertz et al., 2021)	Manufacturing	Event log quality and preprocessing
	(Gomes et al., 2022)	General	Tool evaluation (ProM, Disco, PM4Py)
	(Amantea et al., 2020)	Healthcare	Data format and system integration challenges
	(Reinkemeyer, 2022)	General	PM integration with AI and prediction
	(Ammann et al., 2025)	General	Hybrid PM and AI and automation
	(Al Ayyubi et al., 2024)	Banking	PM and RPA synergy for compliance
	(Werner et al., 2021)	Audit	Auditability and digital evidence
Organization	(Zuidema-Tempel et al., 2022)	General	Academic–practice gap and adoption methodology
	Zuidema-Tempel et al. (2022)	Healthcare	Adoption framework, quick wins, action
	(W. M. P. van der Aalst & Carmona, 2022)	General	Actionability, insight and action transformation
	(Erhard et al., 2023)	Healthcare	Maturity model for data management
	(Hijriani, 2022)	Government	Public sector readiness assessment
	Zerbato et al. (2023)	General	Process mining adoption maturity model
	(Syed et al., n.d.)	Government	Continuity vs. discontinuity tension in adoption
	(Kipping et al., 2022)	General	Team configuration and roles in adoption
	(Maleki Shamasbi, 2023)	General	User competencies and skills

	(Dirnberger et al., 2023)	General	User categories (power users, influencers, etc.)

Table 1. Previous Process Mining Adoption (cont.)

Dimension	Study	Context/sector	Focus
Process	(Eggers & Hein, 2020)	Healthcare	Process awareness and transparency
	(Mamudu, 2021)	Healthcare	Clinical service standardization and adoption
	Al Ayyubi et al. (2024)	Banking	RPA integration and banking ROI
	(Milde et al., 2024)	Manufacturing	PM adoption in the global supply chain
	(Werner & Gehrke, 2015)	Audit	PM for internal audit
	(Rodríguez-Quintero et al., 2021)	Fraud Detection	PM for financial fraud detection
	(Eggers et al., 2021)	Healthcare	Organizational awareness for Transformation
	(Hijriani, 2022)	Government	Public sector readiness and digital policy
Value/Trust	(Martin et al., 2021)	General	Delphi study: adoption opportunities and challenges
	(Tentina et al., 2025)	General	Validation and trust in process mining results
	Gomes et al. (2022)	General	Action selection and actionability
	Zerbato et al. (2023)	General	Maturity as an integration driver
	(Dirnberger et al., 2023)	General	User categories and integration patterns
	(Ammann et al., 2025)	General	Continuous monitoring and sustained adoption
	(Maleki Shamasbi, 2023)	General	Competencies for sustainable integration

3.3 Analysis Bibliometric

The steps for using VOSviewer for bibliometric analysis begin with collecting the data found in RIS format. The data is then imported into VOSviewer, and the user selects the desired analysis type from the title and abstract. Afterward, the analysis parameters, such as the minimum number of occurrences, the number of documents, or the minimum citations, are set to filter the data as needed.

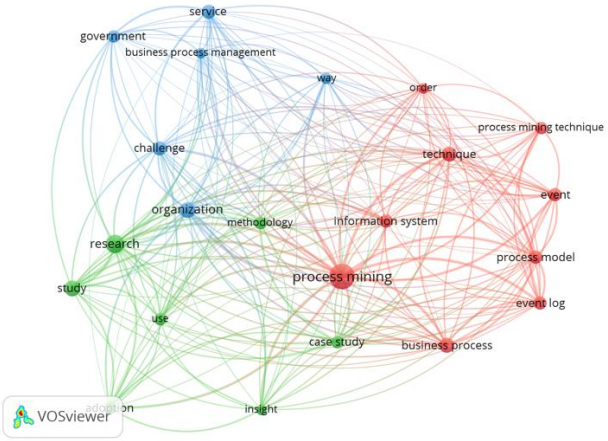

Figure 2. network visualization

For the bibliometric analysis, VOSviewer was utilized to construct visual maps based on data extracted from the title and abstract fields of the selected publications. The binary counting method was applied, ensuring that each term was counted only once per document, regardless of its frequency of occurrence. To focus on the most significant concepts, the threshold was set at a minimum of 13 occurrences per term.

4. Results and Discussion

4.1 Process Mining Adoption in Previous Studies

The adoption of process mining has been widely explored across different organizational and sectoral contexts. A review of prior studies reveals several recurring themes, including opportunities and benefits, challenges and barriers, adoption models, and sector-specific applications.

4.1.1. Tren Analysis

In the early stages, research on process mining adoption primarily focused on the technical foundations, particularly the quality of event logs, data standardization, and integration with enterprise systems. At this stage, most contributions were methodological or tool-oriented, highlighting the technical feasibility of process mining in diverse contexts such as healthcare, manufacturing, and business services.

Recent studies on process mining adoption have focused more on the value and trust in process mining. Process mining results can provide more accurate measures of efficiency improvements, compliance assurance, and ROI. This trend demonstrates that process mining is not merely a technical tool but also plays a role in socio-technical transformation.

4.1.2. Dimensions of the Process Mining Adoption Framework Adoption

The adoption of process mining can be understood through four interrelated dimensions: technology, organization, process, and value & trust. These dimensions form a holistic socio-technical approach, emphasizing that successful adoption requires not only robust digital infrastructure but also human, organizational, and governance readiness. With the four

categories above, an organization can adopt process mining based on its adoption needs and context.

The technological dimension highlights the significance of log data in the adoption of process mining. Without good and reliable initial data, process mining results will be suboptimal or even biased. Integration with other technologies, such as ERP, RPA, and AI, expands the scope of process mining to enhance an organization's operational capabilities.

From an organizational perspective, stakeholder support and commitment were crucial in the adoption of process mining. Furthermore, new roles are required in process mining projects to optimize operational, technical, and business requirements. To reduce internal resistance, good communication and structured training are needed.

The Process Dimension focuses on selecting business processes that are suitable for the organization's context and needs. Incorrect business process selection can render a process mining project worthless. Existing methods can be used by organizations that include planning, implementation, evaluation, and refinement stages. Continuous use of process mining can lead to increased adoption of the process mining approach.

The last dimension emphasizes that the adoption of process mining technology requires consideration of user trust and that the results of process mining can benefit the organization. Validating individual trust can broaden the organization's reach. This dimension ensures that process mining serves not only as a technology but also as a strategic role within the organization.

4.2 Analysis Bibliometric

V This study utilizes VosViewer to present data sketches from 34 papers, which are visualized in the form of network diagrams consisting of three clusters, as shown in Figure 2. The visualization shows three thematic clusters: (1) technical foundations (*process model, event log, techniques*), (2) organizational and sectoral challenges (*government, service, business process management*), and (3) methodological and empirical studies (*case study, application, methodology*). Together, these clusters highlight the importance of aligning technology, organizational context, and practical implementation strategies (see Table 2).

Table 2. Three thematic clusters.

cluster	Color	Item
1	Red	Process mining, order, event, technique, process mining technique, event log, process model, business process
2	Green	Adoption, use, study, research, methodology, case study
3	Blue	Service, business process management, government, challenge, organization

5. Conclusion.

This literature review of process mining adoption, based on 34 selected papers, identified four interrelated categories: Technology, Organization, Process, and Value/Belief. Technological advances can broaden the scope of process mining. The role of stakeholders and experts is crucial in the adoption of technology. Selecting the proper business process, along with user trust and the resulting benefits, is an essential factor in the adoption of process mining.

Process mining adoption depends not only on technological readiness but also on organizational factors, existing processes, and user confidence in utilizing its output. Future research could further emphasize these four categories to build a comprehensive adoption framework.

References

Accorsi, R., & Lebherz, J. (2022). A Practitioner's View on Process Mining Adoption, Event Log Engineering and Data Challenges. In W. M. P. van der Aalst & J. Carmona (Eds.), *Process Mining Handbook* (pp. 212–240). Springer International Publishing. https://doi.org/10.1007/978-3-031-08848-3_7

Al Ayyubi, M. C., Shabrina, U. I., Febrianto, R., Naufal, F., Nafis, M. R., & Lubis, L. S. (2024). Optimizing Core Banking Operation's ROI with Robotic Process Automation: A Case Study from a Leading Southeast Asian Bank. *International Conference on Control and Automation, Electronics, Robotics, Internet of Things, and Artificial Intelligence, CERIA 2024*. https://doi.org/10.1109/CERIA64726.2024.10915031

Amantea, I., Sulis, E., Boella, G., Marinello, R., Bianca, D., Brunetti, E., Bo, M., & Fernandez-Llatas, C. (2020). A Process Mining Application for the Analysis of Hospital-at-Home Admissions. *Studies in Health Technology and Informatics*, *270*, 522–526. https://doi.org/10.3233/SHTI200215

Ammann, J., Lohoff, L., Wurm, B., & Hess, T. (2025). How do Process Mining Users Act, Think, and Feel?: An Explorative Study of Process Mining Use Patterns. *Business and Information Systems Engineering*. https://doi.org/10.1007/s12599-025-00931-9

Berhold, M., Cruz-Jesus, F., & Oliveira, T. (2021). *Association for Information Systems Association for Information Systems AIS Electronic Library (AISeL) AIS Electronic Library (AISeL) CAPSI 2021 Proceedings Portugal (CAPSI) A proposed model for Process Mining Adoption: Using a Mixed-A proposed model for Process Mining Adoption: Using a Mixed-Methods Approach Methods Approach*. https://aisel.aisnet.org/capsi2021/30

Dakić, D., Stefanović, D., Cosic, I., Lolic, T., & Medojević, M. (2018). *Business Process Mining Application: A Literature Review*. https://api.semanticscholar.org/CorpusID:169984011

Dirnberger, J., Loidl, B., & Brunner, U. (2023). Fundamental Framework for Task Mining Technology Adoption: Results from a Qualitative Empirical Study. *ACM International Conference Proceeding Series*, 50–59. https://doi.org/10.1145/3605423.3605443

Eggers, J., & Hein, A. (2020). *Turning Big Data Into Value: A Literature Review on Business Value Realization From Process Mining*. https://www.researchgate.net/publication/341234536

Eggers, J., Hein, A., Böhm, M., & Krcmar, H. (2021). No Longer Out of Sight, No Longer Out of Mind? How Organizations Engage with Process Mining-Induced Transparency to Achieve Increased Process Awareness. *Business & Information Systems Engineering*, *63*. https://doi.org/10.1007/s12599-021-00715-x

Erhard, A., Arthofer, K., & Helm, E. (2023). Extending a data management maturity model for process mining in healthcare. *Stud. Health Technol. Inform.*, *301*, 192–197. https://doi.org/10.3233/SHTI230038

Garcia, C. dos S., Meincheim, A., Faria Junior, E. R., Dallagassa, M. R., Sato, D. M. V., Carvalho, D. R., Santos, E. A. P., & Scalabrin, E. E. (2019). Process mining techniques and applications – A systematic mapping study. *Expert Syst. Appl.*, *133*(C), 260–295. https://doi.org/10.1016/j.eswa.2019.05.003

Gomes, A., Wanzeller, C., & Fialho, J. (2022). *Comparative Analysis of Process Mining Tools*.

Grisold, T., Mendling, J., Otto, M., & vom Brocke, J. (2021). Adoption, use and management of process mining in practice. *Business Process Management Journal*, *27*(2), 369–387. https://doi.org/10.1108/BPMJ-03-2020-0112

Helm, E., Lin, A., Baumgartner, D., Lin, A., & Küng, J. (2020). Towards the Use of Standardized Terms in Clinical Case Studies for Process Mining in Healthcare. *International Journal of Environmental Research and Public Health*, *17*, 1348. https://doi.org/10.3390/ijerph17041348

Hijriani, A. (2022). *AI Implementation Maturity in Process Mining ⋆*. http://ceur-ws.org

Kipping, G., Djurica, D., Franzoi, S., Grisold, T., Marcus, L., Schmid, S., Brocke, J. Vom, Mendling, J., & Röglinger, M. (2022). How to leverage process mining in organizations - towards process mining capabilities. In *Lecture Notes in Computer Science* (pp. 40–46). Springer International Publishing. https://doi.org/10.1007/978-3-031-16103-2_5

Ly, L. T., Maggi, F. M., Montali, M., Rinderle-Ma, S., & van der Aalst, W. M. P. (2015). Compliance monitoring in business processes: Functionalities, application, and tool-support. *Information Systems*, *54*, 209–234. https://doi.org/https://doi.org/10.1016/j.is.2015.02.007

Maleki Shamasbi, S. (2023). *Unlocking Success in Process Mining Adoption: A Comprehensive Exploration of Human Resources and Team Configuration*.

Mamudu, A. (2021). *A Conceptualisation of Process Mining Impacts under Creative Commons License Attribution 4.0 International (CC BY 4.0)*. http://ceur-ws.orgISSN1613-0073CEURWorkshopProceedings

Martin, N., Fischer, D., Kerpedzhiev, G., Goel, K., Leemans, S., Roeglinger, M., Aalst, W., Dumas, M., La Rosa, M., & Wynn, M. (2021). Opportunities and Challenges for Process Mining in Organizations: Results of a Delphi Study. *Business & Information Systems Engineering*, *63*, 1–17. https://doi.org/10.1007/s12599-021-00720-0

Milde, M., Horsthofer-Rauch, J., Kroeger, S., & Reinhart, G. (2024). Enabling Process Mining In Global Production Networks. *Procedia CIRP*, *120*, 451–456. https://doi.org/10.1016/j.procir.2023.09.018

Reinkemeyer, L. (2022). *Status and Future of Process Mining: From Process Discovery to Process Execution* (pp. 405–415). https://doi.org/10.1007/978-3-031-08848-3_13

Rodríguez-Quintero, J.-F., Díaz, A., Iriarte-Navarro, L., Maté, A., Marco-Such, M., & Trujillo, J. (2021). Fraud Audit Based on Visual Analysis: A Process Mining Approach. *Applied Sciences*, *11*, 4751. https://doi.org/10.3390/app11114751

Rogers, E. M., Singhal, A., & Quinlan, M. M. (2019). Diffusion of innovations. In *An Integrated Approach to Communication Theory and Research, Third Edition* (pp. 415–433). Taylor and Francis. https://doi.org/10.4324/9780203710753-35

Stertz, F., Mangler, J., Wais, B., & Rinderle-Ma, S. (2021). *Expectations vs. Experiences – Process Mining in Small and Medium Sized Manufacturing Companies* (pp. 195–211). https://doi.org/10.1007/978-3-030-85440-9_12

Syed, R., J Leemans, S. J., Eden, R., & ACM Buijs, J. (n.d.). *Process Mining Adoption A Technology Continuity versus Discontinuity Perspective*. https://www.apg.nl/en

Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing*, *22*, 960–967. https://doi.org/10.1016/j.promfg.2018.03.137

Tentina, I., Mannhardt, F., Zerbato, F., & van Dongen, B. (2025). Can Users Trust Process Mining? *Lecture Notes in Business Information Processing*, *554 LNBIP*, 137–151. https://doi.org/10.1007/978-3-031-94193-1_11

Van der Aalst, W. (2016). Process mining: Data science in action. In *Process Mining: Data Science in Action*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-49851-4

van der Aalst, W. (2020). Academic View: Development of the Process Mining Discipline. In L. Reinkemeyer (Ed.), *Process Mining in Action: Principles, Use Cases and Outlook* (pp. 181–196). Springer International Publishing. https://doi.org/10.1007/978-3-030-40172-6_21

van der Aalst, W. M. P., & Carmona, J. (2022). Scaling Process Mining to Turn Insights into Actions. In *Lecture Notes in Business Information Processing* (Vol. 448, pp. 495–502). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-031-08848-3_17

Werner, M., & Gehrke, N. (2015). Multilevel Process Mining for Financial Audits. *IEEE Transactions on Services Computing*, *8*(6), 820–832. https://doi.org/10.1109/TSC.2015.2457907

Werner, M., Wiese, M., & Maas, A. (2021). Embedding process mining into financial statement audits. *International Journal of Accounting Information Systems*, *41*, 100514. https://doi.org/10.1016/j.accinf.2021.100514

Zuidema-Tempel, E., Effing, R., & van Hillegersberg, J. (2022). Bridging the Gap Between Process Mining Methodologies and Process Mining Practices. In C. Di Ciccio, R. Dijkman, A. del Río Ortega, & S. Rinderle-Ma (Eds.), *Business Process Management Forum - BPM 2022 Forum* (pp. 70–86). Springer. https://doi.org/10.1007/978-3-031-16171-1_5