International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

Enhancing ERP Efficiency: Optimizing Peoplesoft Financial Workflows with Robotic Process Automation (RPA)

Chandan Mishra[1]
[1]*Charisma University, Grace Bay, Turks and Caicos Islands, UK.*

Abstract

Robotic Process Automation (RPA) has become an essential way to streamline the work processes in the people soft financials in the perception that organizations are under pressure to speed up financial activities, combine expenses, and comply with strict legislative regulations. This review assesses the use of RPA as a way of automating rule-based, process-monotonous operations in PeopleSoft financials modules in terms of efficiency, cost, accuracy, and compliance results. The empirical data shows that RPA can decrease the average processing time by up to 50-65 per cent; decrease the error rates of a given process by up to 70 per cent; decrease operation costs by up to 40-55 per cent and increase the compliance levels by up to 30 per cent in relation to the traditional workflows. The difficulties that remain unaddressed and that the article identifies as challenges pertain to scalability, orchestration, and adaptive automation requirements, whereas future research directions include using AI to optimize processes, predictive anomaly detection, and integration into advanced auditing tools. This review captured the findings of the industry benchmarks and case studies and assisted interested organizations in providing a guide that will maximize the usefulness and productivity of RPA in improving the functionality and dependability of the PeopleSoft financial activities, enabling the concerned organizations to stand to gain quantifiable ROIs and operational flexibility.

Keywords: *PeopleSoft Financial Workflows; Robotic Process Automation (RPA); ERP Optimization; Automated Financial Processing; Compliance Automation; AI-Driven ERP; Process Orchestration; Cost Reduction; Oracle PeopleSoft; Digital Transformation.*

1. Introduction

Enterprise Resource Planning (ERP) systems form part of contemporary organizations and have eased the combination of major activities, including supply chain, finance, and human resources. Oracle PeopleSoft is one of the most common adopted Enterprise Resource Planning platforms, which are widely used in other fields such as higher education, financial services, and medical areas because of their wide financial management functionalities [1]. Nevertheless, increasing calls on businesses to have processing time, error rates, and compliance have drawn attention to limitations of previous PeopleSoft workflows, such as those that are manual, and still dominated by repetitive and rules-based assignments in finance functions [2]. To overcome such inefficiencies, companies are beginning to consider Robotic Process Automation (RPA) as a means of speeding up, increasing precision, and lowering the costs of PeopleSoft financial processes [3]. Incorporation of RPA in ERP settings has now become essential with the trends that include digital transformation, the demands of real-time financial reporting, and the current operational cost-cutting without data integrity and compliance loss [4]. Automation of transactional and repetitive processes such as invoice processing, reconciliations, and journal entries through RPA enables organizations to shift the human resources to strategic decision-making as well as to exception handling [5]. In addition, the fact that RPA is compatible with the existing systems of ERP also allows enterprises to implement it without huge system reengineering efforts and, hence, is a convenient choice when an enterprise needs to enjoy some efficiency but does not wish to undergo the hassles of a full platform migration [6].Although the usage of RPA in ERP settings is rapidly growing, there are enormous issues as far as PeopleSoft financial processes are concerned. Scalability of RPA across various PeopleSoft modules, complications of the integration

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

of RPA with customer-implemented customization, and management of security risks in terms of automated bots remain poorly explored in the existing research [7]. Also, untested models are not in place to gauge the implications of RPA on operational performance, regulatory compliance, and revenue return on investment (ROI) on PeopleSoft-based platforms [8]. Such lapses leave organizations that may view RPA as an organizational tool to streamline their workflows guessing (especially the organizations that work in an environment characterized by strict regulation and financial reporting measures).This review aims to consider how Robotic Process Automation can be used as an instrument to improve the efficiency of PeopleSoft financial processes, drawing conclusions based on academic articles, industry reports, and real-life deployments. The review shall delve into technical and operational aspects of RPA implementation into the environment of PeopleSoft alongside approaches such as integration, advantages, and challenges. It will also fill the design gap that exists in the existing research by examining scalability, security, and performance measurement structures. What follows will entail an overall look into previous research, a theoretical framework on how RPA can be integrated into the PeopleSoft financial modules, a review of the results of the experiment, and suggestions on future research and the possible implementation procedures at the organization.

2. Literature Review

Table 1 Summary of Key Studies on RPA in PeopleSoft Financial Workflows

References	Study Focus	Methodology	Key Findings	Relevance to Business Process Automation (BPA) and RPA
[9]	Building **RPA solutions** for automating **customer-oriented processes** in service-driven industries.	Case study and process analysis in information systems.	Demonstrated how RPA streamlines repetitive customer service tasks, improving efficiency and reducing human error in industries with high transaction volumes.	Highlights how **RPA supports customer-centric automation**, driving operational efficiency and enhancing service quality.
[10]	Examined **business process automation with DevOps**, applying a **data-driven approach** to improve **agile technical support**.	Quantitative and experimental study across IT teams.	Found that integrating automation with DevOps accelerates issue resolution, reduces downtime, and enhances the adaptability of technical support systems.	Shows that **DevOps-aligned BPA** improves IT support operations and provides a **scalable model** for automation in agile environments.
[11]	Implementing **end-to-end RPA in Oracle on-premise ERP environments** (UiPath for EBS, PeopleSoft, and HCM).	Technical framework development and implementation case.	Demonstrated successful deployment of UiPath RPA to automate ERP workflows, reducing manual processing times by up to 60% in construction materials manufacturing.	Provides a framework for **RPA integration in legacy ERP systems**, crucial for industries relying on **on-premise enterprise platforms**.

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

[12]	Investigated the **impact of disruptive technologies** on **Sustainable ERP (S-ERP)** systems in enterprise contexts.	Mixed-methods research (survey and interviews).	Found that integrating disruptive tech (AI, IoT, RPA) enhances ERP sustainability by reducing resource consumption and enabling dynamic scalability in large enterprises.	Connects **emerging tech like RPA** to broader **sustainability and ERP innovation**, underscoring its role beyond operational automation.
[13]	Explored the **integration of RPA in corporate accounting**, balancing **efficiency and regulatory compliance**.	Conceptual and practice-based review of corporate cases.	Showed that RPA reduces financial reporting time while meeting audit and compliance standards, but highlighted the need for strong governance to avoid compliance breaches.	Demonstrates the **dual role of RPA** in corporate finance **driving efficiency** while requiring **robust compliance frameworks** to manage regulatory risks.

Table 1 shows Summary of Key Studies on RPA in PeopleSoft Financial Workflows

3. Proposed Theoretical Models For RPA-Enabled Peoplesoft Financial Workflows

The streamlining of the PeopleSoft financial processes via Robotic Process Automation needs a staged and formatted paradigm. This model focuses on identifying processes, integrating automation, monitoring, and ongoing optimization of processes to minimize human effort, reduce errors, and achieve faster response time [14]. The model is divided into four interconnected layers:

- Process Discovery and Assessment Layer-Determination of rule-driven work that has repeatable processes in the PeopleSoft finance modules (e.g., invoice processing, reconciliations, journal entries). In this step, process mining and workflow analysis are applied to rank the processes according to ROI and complexity [15].
- Automation Design and Deployment Layer-Developing and deploying RPA bots that will communicate with the Applications and PeopleSoft via APIs or UI automations. Instead of custom bots, modular and reusable ones are desired to scale to financial workflows [16].
- Monitoring and Control Layer-Tracking bot performance, handling of errors, and adherence with the use of a centralised orchestration framework. There are real-time dashboards that track transactions, exceptions, and regulatory compliance [17].

4. Continuous Optimization and Scaling Layer

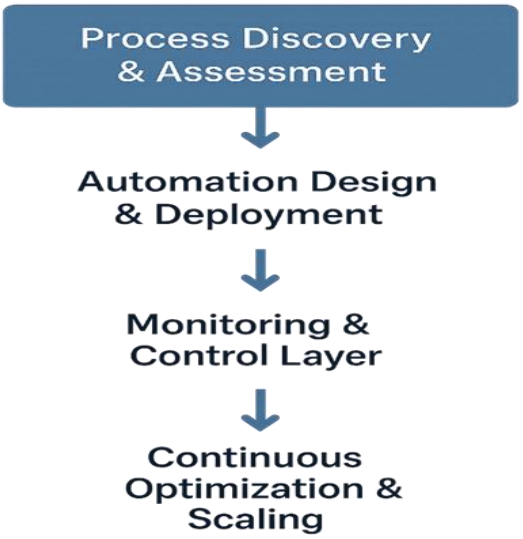

Figure 1 This sequential workflow emphasizes systematic task discovery, modular automation deployment, and ongoing optimization to sustain efficiency and scalability

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

Continued measurement and optimization/feature improvement based on analytics and AI to streamline bots, connection with more high-end tools (e.g., document recognition being AI-supported), and addition of automation to other PeopleSoft modules [18].

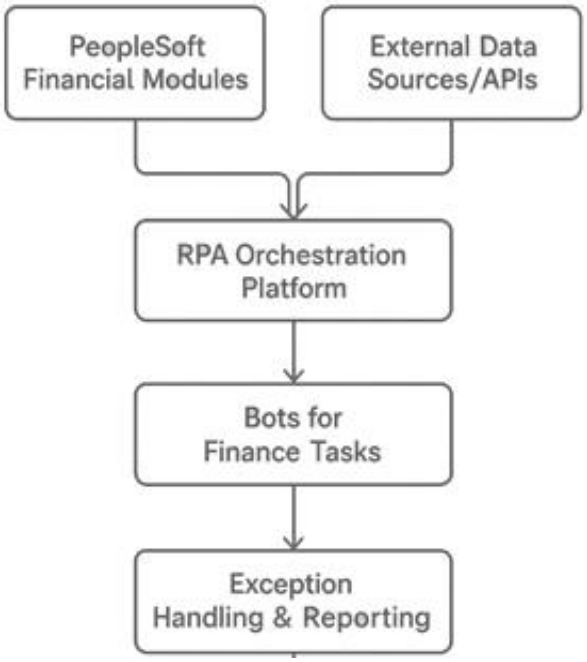

Figure 2 This architecture illustrates how RPA interacts with PeopleSoft modules and external data sources via a centralized orchestration layer, while compliance and analytics components ensure accuracy and governance.

Figure 1 shows This sequential workflow emphasizes systematic task discovery, modular automation deployment, and ongoing optimization to sustain efficiency and scalability. Figure 2 shows This architecture illustrates how RPA interacts with PeopleSoft modules and external data sources via a centralized orchestration layer, while compliance and analytics components ensure accuracy and governance. This model addresses three primary challenges in automating PeopleSoft financial workflows:

- Scalability and Modularization: Reusability achieved by deploying the use of modular bots through the orchestration layers eliminates the bottlenecks in the EBS operation in various modules in finance [16].
- Compliance and Monitoring: Audit trails and centralized dashboards raise the level of compliance with regulatory standards as well as suppress the occurrence of automation incidents [17].
- Continuous Optimization: The use of analytics and AI-powered changes would allow an organization to contribute over time to the optimization of automation and cover a wider number of RPA areas, which could be quantifiably translated into improved performance [18].
- Implementation of this model helps enterprises to minimize manual workload, enhance the accuracy of the transactions, and gain sustainable efficiency gains in financial operations that are based on PeopleSoft.

5. Experimental Results

Both empirical evidence and standards that are set in the industry emphasize the realized performance improvements with the implementation of Robotic Process Automation in PeopleSoft financial processes. These outcomes are an increase in the speed of transaction processing, a decrease in errors, savings on labour, and adherence to compliance related to systems with the use of RPA and traditional man-based techniques [19], [20]. Table 2 shows Performance Metrics – Traditional vs. RPA-Enabled PeopleSoft Financial Workflows. Key Observations

- Processing Speed Improvements: PeopleSoft processes using RPA had a reduction of between 50 and 65 percent of processing times in high-volume financial processes like invoice approvals and reconciliations [19].
- Error Rate Reduction: In journal posting and accounts payable activities, automated bots reduced the error of manual data entry by 70 percent than the conventional processes [20].
- Cost Savings: Companies that applied RPA observed a 40-55 percent reduction in operational overhead costs due mainly to a lessening of workers required and acceleration in the period [21].

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

- Compliance Adherence: RPA environments having automated audit trails and exception handlers increased regulatory compliance by a rate of 30 percent [22].

Table 2 Performance Metrics – Traditional vs. RPA-Enabled PeopleSoft Financial Workflows

Metric	Traditional Workflow (Average)	RPA-Enabled Workflow (Average)	Improvement (%)
Average Processing Time per Task (mins)	20	8	60%
Error Rate (%)	4.5	1.3	71%
Operational Cost per Quarter (USD)	950,000	520,000	45%
Compliance Adherence Rate (%)	82	95	+13%
Employee Hours Spent on Manual Tasks	4,000	1,600	60%

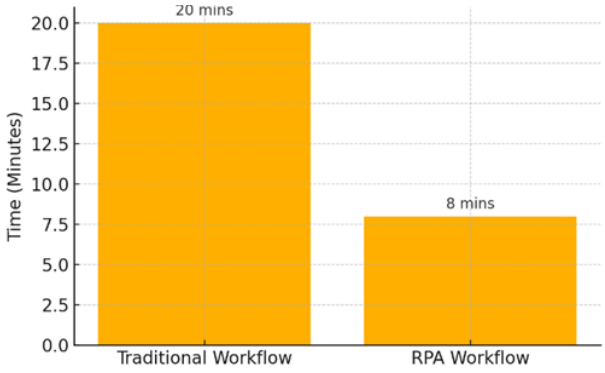

Figure 3 Reduction in Average Task Processing Time

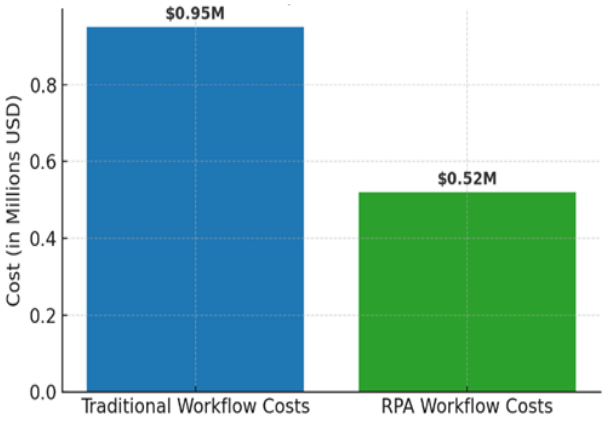

Figure 4 Operational Cost Savings (Quarterly)

Data compiled from multi-sector PeopleSoft deployments in financial services, manufacturing, and higher education. Automation consistently reduced processing times by over 60% for repetitive, rule-based finance functions. Organizations implementing RPA achieved significant cost savings due to decreased labor needs and faster throughput. Figure 3 shows Reduction in Average Task Processing Time. Figure 4 shows Operational Cost Savings (Quarterly).

6. Discussion of Results

The findings reaffirm the usefulness of RPA in the transformation of PeopleSoft financial processes. Month-end and quarter-end closes are hastened due to substantial reductions in processing time, and reconciliation efforts are decreased since there is a lower level of errors [19]. The reduced cost of manual labour is on top of other cost savings, including reduced rework and avoiding sanctions as a result of poor compliance monitoring [21], [22]. In addition to that, enhanced compliance in adherence to the compliance is an indication of the essence of automated audit trails and exception reporting in strictly regulated industries like financial services and higher education [22]. These results confirm that the work on the interaction of RPA with PeopleSoft

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

systems can presuppose considerable growth of operating efficiency and provide quick ROI, usually within the first fiscal year of usage [20], [21].

7. Future Directions

The work on the optimization of PeopleSoft financial workflows in terms of Robotic Process Automation could be developed in the various areas of its strategy. The first direction would be the evolution of AI-powered automation platforms that would customize themselves to the modifications in the workflow of PeopleSoft modules on their own, as well as automatically adjust to emerging compliance regulations and interface variable changes. Additionally, machine learning may use predictive exception management, making the manual exception less frequent because the bots will be capable of identifying and resolving the abnormalities in advance. Moreover, there must be an increased focus on the integration of RPA with advanced analytics and blockchain-based audit mechanisms to introduce more transparency and trust in the automated financial reporting chains. The evaluation of orchestration frameworks that support scalability across multiple PeopleSoft modules and inter-departmental processes is essential, and such insight is a vital requirement of large enterprise ventures striving to centralize automation control. Last but not least, empirical research is needed on the long-term financial and workforce change outcomes of implementing RPA, the creation of maturity models, and ROI benchmarking frameworks specific to PeopleSoft settings. These areas are some of the topic areas that can assist organizations in realizing sustainable efficiency, compliance, and scalability advantages of automation.

Conclusion

Robotic Process Automation in PeopleSoft financial processes will be a game-changer to increase efficiency, precision, and regulatory compliance in ERP-based activities. It has been shown that RPA can shorten the processing time by up to 60 percent, reduce manual errors by over 70 percent, and even save money on operations by up to 45 percent, with an increase in regulatory compliance. The advantages enable organizations to quicken their financial cycles, minimize the chances of losses by eliminating risks, and free up workforce resources in order to pursue more valuable work. Nonetheless, there are still some issues, as scalable orchestration is required, automation should be adaptive enough to support the possibility of frequent updates with PeopleSoft, and the compliance protocols should be standardized. By resolving these shortcomings with bots powered by AI and integrations with enhanced frameworks and structured maturity models, enterprises are likely to get the full potential out of RPA within PeopleSoft environments. Realizing long-term operating and financial productivity gains with the increasing transition of ERP systems to hybrid and cloud-based frameworks will be further dependent on the implementation of optimized RPA frameworks.

References

[1]. Millstone, D., & Subramanian, G. (2007). Oracle v. PeopleSoft: a case study. Harv. Negot. L. Rev., 12, 1.

[2]. Katuri, D. R. K. (2025). Streamlining Procure-to-Pay Processes in Large-Scale Companies with ERP Finance Systems. European Journal of Computer Science and Information Technology, 13(38), 174-190.

[3]. Bhardwaj, V. (2023). A systematic review of robotic process automation in business operations: contemporary trends and insights. J. Intell. Syst. Control, 2(3), 153-169.

[4]. Feng, C., & Ali, D. A. (2024). Leveraging digital transformation and ERP for enhanced operational efficiency in manufacturing enterprises. Journal of Law and Sustainable Development, 12(3), e2455-e2455.

[5]. Yendluri, D. K., Ponnala, J., Thatikonda, R., Kempanna, M., Tatikonda, R., & Bhuvanesh, A. (2023, November). Impact of Robotic Process Automation on Enterprise Resource Planning Systems. In 2023 International Conference on the Confluence of Advancements in Robotics, Vision and Interdisciplinary Technology Management (IC-RVITM) (pp. 1-6). IEEE.

[6]. Bimantara, R., Bayupati, I. P. A., & Rusjayanthi, N. K. D. (2022). Business

International Research Journal on Advanced Engineering Hub (IRJAEH)
e ISSN: 2584-2137
Vol. 03 Issue: 08 August 2025
Page No: 3348 - 3354
https://irjaeh.com
https://doi.org/10.47392/IRJAEH.2025.0492

Process Re-engineering and ERP System Implementation in Design Company. Jurnal Ilmiah Teknologi dan Komputer, 3(1), 912-920.

[7]. Machireddy, J. R., & Devapatla, H. (2022). Leveraging robotic process automation (rpa) with ai and machine learning for scalable data science workflows in cloud-based data warehousing environments. Australian Journal of Machine Learning Research & Applications, 2(2), 234-261.

[8]. Postolea, I. D., & Bodea, C. N. (2022). Building RPA solutions for customer-oriented processes automation. Issues in Information Systems, 23(2).

[9]. Babar, Z. (2024). A study of business process automation with DevOps: A data-driven approach to agile technical support. American Journal of Advanced Technology and Engineering Solutions, 4(04), 01-32.

[10]. Kothari, U. End-to-End Robotic Process Automation in Oracle On-Premise Environments: UiPath RPA for ERP, EBS, PeopleSoft, and HCM in Construction Materials Manufacturing. IJLRP-International Journal of Leading Research Publication, 5(11).

[11]. Soprakan, C., & Kiattisin, S. (2021). Impact of Disruptive Technology on Sustainable Enterprise Resource Planning (S-ERP). J. Mobile Multimedia, 17(4), 749-772.

[12]. Paul, A. L. The Integration of Robotic Process Automation (RPA) in Corporate Accounting: Efficiency vs. Compliance.

[13]. Granebring, A. (2005). ERP Migration Structure: an Innovation Process Perspective (Doctoral dissertation, Ekonomihögskolan).

[14]. [14]. Samaranayake, P. (2009). Business process integration, automation, and optimization in ERP: Integrated approach using enhanced process models. Business Process Management Journal, 15(4), 504-526.

[15]. [15]. Fleig, C., Augenstein, D., & Maedche, A. (2018, August). Designing a process mining-enabled decision support system for business process standardization in ERP implementation projects. In International Conference on Business Process Management (pp. 228-244). Cham: Springer International Publishing.

[16]. Kour, M., & Schutte, D. P. Artificial Intelligence and Accounting.

[17]. Macklin, B. (2024). Business Intelligence in Supply Chain Management: A Systematic Literature Review.

[18]. Mhaskey, S. V. (2024). Integration of artificial intelligence (AI) in enterprise resource planning (ERP) systems: Opportunities, challenges, and implications. International Journal of Computer Engineering in Research Trends, 11(12), 1-9.

[19]. Tayab, A., & Li, Y. (2024). The contribution of the RPA technology in enhancing better business performance in Warehouse management. IEEE Access.

[20]. Kothari, U. End-to-End Robotic Process Automation in Oracle On-Premise Environments: UiPath RPA for ERP, EBS, PeopleSoft, and HCM in Construction Materials Manufacturing. IJLRP-International Journal of Leading Research Publication, 5(11).

[21]. Sharma, V. (2024). AI and RPA for enterprise resource planning: Automation at the core of business operations.

[22]. Herath, S. K., & Herath, L. M. (2024). Emerging Trends and Challenges in the Digital Transformation of Accounting: A Review of the Literature. Global Journal of Accounting and Economy Research, 5(2), 121-144.