



Modernizing PeopleSoft Financial Systems: Automation, Cloud Integration, and Workflow Optimization

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Abstract

Enterprise Resource Planning (ERP) systems have been a part of the financial and operational processes of contemporary institutions. Although a strong and mature platform, Oracle PeopleSoft Financials was developed based on the old architectures that are becoming less and less fit to meet the modern business requirements of agility, automation, and cloud-native integration. This literature review indicates the need and ways of modernising PeopleSoft Financial systems with three key pillars such as automation, cloud integration, and workflow optimisation. The paper presents a theoretical framework backed by literature in the industry and the scholarly world to inform the strategies of modernisation. The main issues of customisations of the past, data integrity, and the readiness of the organisation are addressed. Further research directions and recommendations include a focus on establishing a consistent modernisation framework, transitioning to the use of hybrid clouds, and the use of advanced analytics. The presented insights will help to inform research and practical implementation to implement sustainable ERP transformation.

1. Introduction

Enterprise resource planning (ERP) systems have continued to be the fabric of operational effectiveness and fiscal responsibility in major organisations, especially in the higher education sector, healthcare sector, government sector, and Fortune 500 corporations. Oracle PeopleSoft Financials is one of these systems that have traditionally been at the centre of organising basic financial activities such as general ledger, accounts payable, asset management and procurement. PeopleSoft was originally developed in the late 1980s and was popularly used in the 1990s and early 2000s, where the term came to refer to enterprise-quality financial systems. Nevertheless, the architectural foundations of PeopleSoft were built

on the basis of old-fashioned environments, making them more and more obsolete in a modern technological environment with a high rate of automation, artificial intelligence (AI), cloud computing, and real-time data analysis [1]. The emerging pressure of agility, scalability and digital innovation has put unprecedented pressure on the modernisation of the traditional ERP systems. Organisations are becoming more anticipated to have the ability to execute financial transactions and accuracy in real-time, maintain compliance in increasingly changing regulatory settings, and have very strong levels of data integrity, all without overly having to intervene by hand or at the administrative level [2]. It is against this

background that the modernisation of the PeopleSoft Financial Systems has become a sore necessity. Modernisation is not merely a set of new upgrades to the system but a strategic transformation that entails automation of the financial repetitive operations, integration with the cloud-native applications and services, and streamlining of financial ecosystem workflow processes [3]. The subject has significant topicality in the current research environment, where organisations are moving out of the stagnant and on premise ERP infrastructure and into the dynamic and cloud-based and data-driven one. The scalability that is provided by cloud computing, low costs of infrastructure and business continuity are effective in the changing requirements of financial operations. Moreover, automation, which is also possible with the help of robotic process automation (RPA), AI, and machine learning, provides considerable benefits in minimising the number of human errors, enhancing compliance, and leveraging resources to more value-oriented activities [4]. Instead, workflow optimisation can be used to improve the efficiency of approval chains, budget management and reporting cycles, particularly when managed in tandem with business intelligence (BI) platforms and data visualisation software [5]. In a wider sphere of enterprise IT and financial system studies, the concept of modernisation is becoming increasingly popular as it is directly related to organisational performance, compliance with regulations, and resilience in operations. The intersection of digital transformation plans and financial governance models has increased the need to adopt next-generation ERP capabilities even further [6]. Theoretically, the modernisation of the PeopleSoft systems touches the areas of information systems, organisational change management and business process reengineering, and consequently it is a multidisciplinary subject where there are a vast

number of theoretical and practical implications. Although there is a strategic need to modernise the PeopleSoft Financial Systems, many challenges continue to exist. Obsolete systems like PeopleSoft are highly integrated in organisational procedures and are also normally tailored over years, and thus modernising them has been complicated and costly [7]. Most of the implementations continue to use archaic code designs, manual workarounds and data siloed architectures that impede the use of cloud-based integrations. In addition, the literature that discusses best practices in the process of moving PeopleSoft systems to hybrid or purely cloud-based systems is rather sparse. Although Oracle still offers updates via the PeopleSoft Update Manager (PUM), they usually consume significant internal resources and resources and planning to execute updates, which restricts their ability to bring transformational change [8]. Simultaneously, data security and the inability of interoperability between systems and resistance to change on the part of users are other impediments to modernisation. The existing literature also has no integrated frameworks to discuss how automation, cloud integration and workflow redesign can be applied in the PeopleSoft settings in a systematic manner to realise tangible financial and operational advantages. Case studies tend to be quite diverse in size and magnitude, with little cross-sectoral comparisons or standards-based performance measures. In addition, although literature has analysed cloud migrations or RPA individually, little has explored these themes as one in the setting of PeopleSoft Financial Systems [9]. In light of these gaps, this review aims to synthesise and assess existing strategies, issues, and results that pertain to the modernisation of the PeopleSoft Financial Systems, under the three interconnective pillars, namely, automation, cloud integration, and workflow optimisation.

2. Literature review

Table 1 Summary of Key Research on ERP and PeopleSoft Modernisation

Reference	Purpose / Objective	Methodology	Key Findings	Relevance to Research
[10]	To examine the relationship between business process management (BPM)	Literature review and conceptual analysis presented in conference	BPM is a foundational element in ensuring successful digital transformation, aligning	Reinforces the strategic importance of ERP integration within digital

	and digital transformation in modern enterprises.	proceedings.	business objectives with IT capabilities.	transformation frameworks.
[11]	To explore key challenges and outline best practices in transitioning legacy ERP systems to cloud platforms.	Qualitative analysis with industry examples and migration frameworks.	Identified challenges include data migration complexity, security concerns, and change resistance. Emphasizes the need for phased transition and effective stakeholder engagement.	Provides critical insight into ERP modernization and the shift toward cloud-based infrastructures.
[12]	To evaluate how Robotic Process Automation (RPA) affects accounting and ERP-integrated financial systems.	Empirical study using organizational case studies and accounting data.	RPA streamlines repetitive tasks, enhances accuracy, and reduces operational costs, but poses integration and audit trail challenges.	Demonstrates how emerging technologies like RPA enhance ERP system capabilities, particularly in finance functions.
[13]	To identify prevalent risks in ERP customization efforts and propose mitigation strategies.	Analytical review based on documented ERP failure cases and implementation experiences.	Over-customization can lead to increased costs, complexity, and system failures; recommends using standard modules where possible.	Critical for understanding risk factors during ERP implementation and long-term maintenance planning.
[14]	To assess how cloud-based ERP solutions like Workday drive efficiency and support innovation.	Mixed-method approach including case studies and economic performance analysis.	Cloud ERP enhances scalability, real-time reporting, and strategic decision-making; Workday is highlighted for its user-centric design and agile updates.	Supports adoption of cloud ERP platforms to enhance business agility, efficiency, and digital innovation.

3. Block Diagrams and Proposed Theoretical Model

The modernisation of PeopleSoft Financial Systems demands a layered and structured system that will be able to integrate the automation tools, cloud services, and optimised workflows in a manner that is integrated with the legacy PeopleSoft system. A clear block representation and theoretical framework offer graphical and intellectual clarity towards the ways of implementation, systems integration, and functional enhancement. Service-based architecture is the key to

a modernisation approach and integration of modular components [15].

3.1. Modernisation of PeopleSoft Financial System Conceptual Block Diagram

The block diagram below represents the conceptual perspective of the interplay between the components of modernisation and the current PeopleSoft Financial System. It incorporates three key modernisation pillars, namely Automation, Cloud Services, and Workflow Optimisation.

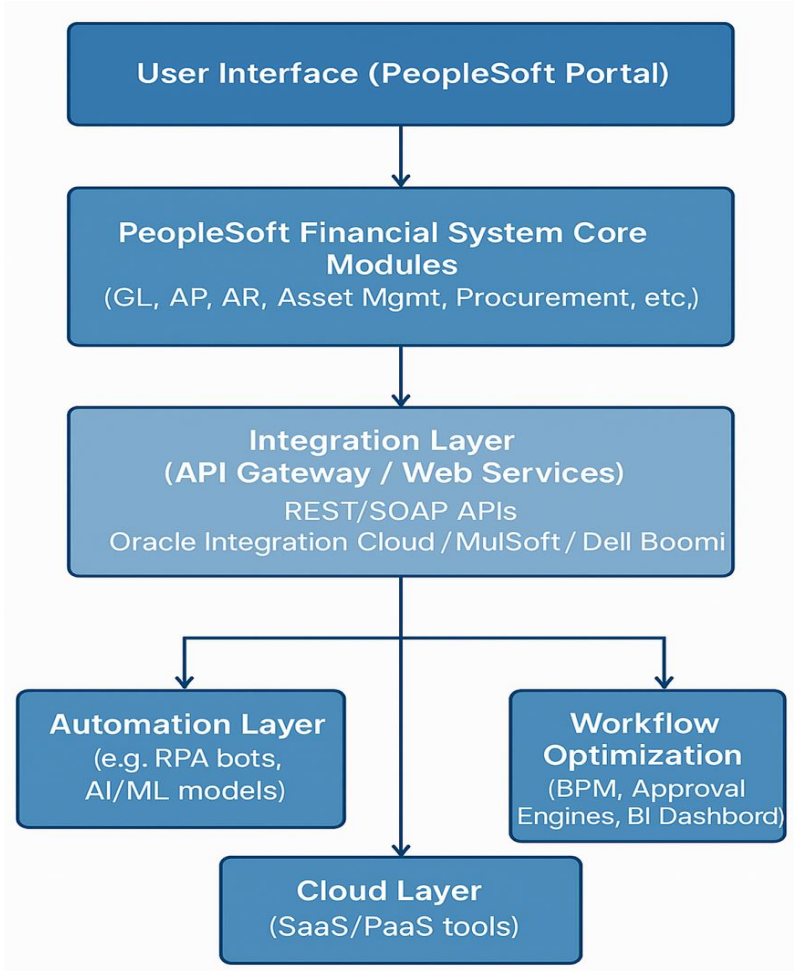


Figure 1 Conceptual Block Diagram for PeopleSoft Modernisation

3.2. A Theoretical Model Suggested in the Modernisation of PeopleSoft Financial Systems

The modernisation theoretical model has a stratified integration and changes model. It is based on the theory of socio-technical systems and information system success models and approaches the

conceptualisation of modernisation as a process of interaction between technological improvement, process reengineering, and organisational flexibility [16]. The MLMM incorporates five layers that need to interact together to realise the objectives of modernisation:

Table 2 Overview of the Model: Multi-Layer Modernisation Model (MLMM)

Layer	Description
Legacy System Core	Existing PeopleSoft financial modules that serve as the foundational ERP engine.
Middleware/Integration	Facilitates communication between PeopleSoft and external platforms using APIs and connectors.
Transformation Tools	Includes automation technologies such as RPA, AI/ML analytics, and low-code platforms.
Process Governance	Redesigns workflows, approvals, and data validation rules through BPM tools and policy engines.
Outcome Metrics	Measures process improvements, error reduction, compliance levels, and financial KPIs.

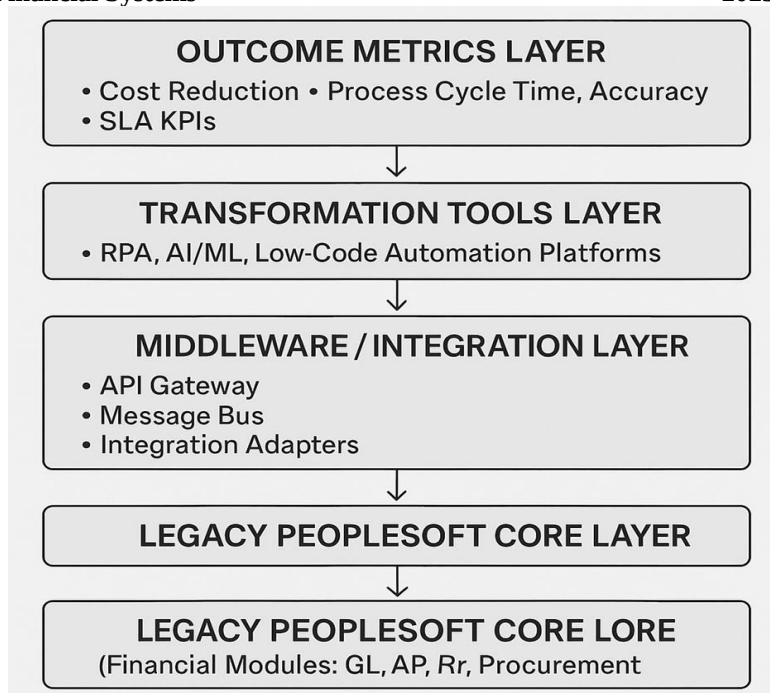


Figure 2 Multi-Layer Modernisation Model (MLMM)

3.3. Theoretical and Practical Background

The provided model is aligned with the Technology-Organisation-Environment (TOE) model that encourages the implementation of IT within the complex enterprise setting. It puts emphasis on the technological (automation and integration) capability, organisational (training, stakeholder buy-in) capabilities, and external pressure (compliance, market standards) as modernisation drivers [17]. In addition, the model relies on the IS Success Model created by DeLone and McLean to create outcome layers, which track the system usage, end-user satisfaction, and net benefits (e.g., ROI, operational improvement) [18]. The governance layer also offers conformity to COBIT 5 principles of process maturity, information governance and audits [19].

3.4. The Model has strategic Advantages

- **Scalability:** There is an option of selectively modernising the system instead of replacing it with a modular integration altogether.
- **Cost Economy:** Automation reduces the amount of manual activities and operational costs.
- **Real-time Processing:** API-based cloud-enabled RPA and real-time financial reporting and insights.
- **Compliance and Auditability:** The optimisation of workflow enhances track, trace and adherence to regulations.

- **User Enablement:** Higher UI/UX and a less complex workflow will make the employees more productive.

3.5. Challenges Associated with Implementation

Despite the merits, there are technical and organisational issues with the model:

- **Customisations:** PeopleSoft is very customised, and this is an obstacle to the integration and automation [20].
- **Data Consistency:** Mao: This will guarantee that data is migrated or synchronised between the cloud platforms and PeopleSoft, using powerful validation layers.
- **Change Management:** Resistance and delay can be addressed through altering workflow in the organisation, and re-training of users.
- **Security Risk:** API and third-party integrations are prone to vulnerability without proper implementation of authentication, encryption, and endpoint controls.

3.6. Application in Practice

The model has been implemented in institutions of higher learning and the public sector, whereby the ERP system modernisation has led to improvement in procurement processes, finance processes reconciliation and real-time reporting. Organisations that have deployed the Oracle Cloud

Infrastructure and utilised RPA software have reported having minimised errors in manual entries, and also, monthly end-of-month close processes have been streamlined [21].

4. Real-Time Applications of PeopleSoft Financial Systems Modernisation

PeopleSoft Financial Systems modernisation is not a fantasy but a real requirement that has already been used in all types of real-life situations. The old, outdated ERP systems used in various institutions within the public sector, tertiary institutions, and government agencies have been displaced to the new cloud-based and automated environment. These live applications offer a concrete point of reference to the transformation in the financial operations and regulation that automation, cloud integration, and optimisation of workflows have introduced. The University of California (UC) system can be regarded as a good example of successful modernisation of PeopleSoft. The school, home to ten campuses and a population of over 280,000 students, undertook a transformation project over a period of years to re-equip its PeopleSoft Financial Management System (FMS) with cloud services in addition to automating the financial processes. The UC system made approval and expenses visibility across the campuses more efficient using the Oracle Cloud Infrastructure (OCI) and Oracle BI Publisher with workflow engines, such as the Approval Workflow Engine (AWE). This meant that the financial processing cycle times were reduced by 30 per cent, audit readiness was highly improved, and a consolidation of data of the whole system was achieved to facilitate the improved reporting and planning. The other real-time adoption is observed in Miami-Dade County, which adopted robotic process automation (RPA) to convert an already existing accounts payable system that the county already had that utilised PeopleSoft. The high-volume invoices that were processed previously required much manual input, and that led to inefficiency, and errors were quite frequent. The county automated the process of data validation and matching invoices and PeopleSoft entries with the help of UiPath RPA tools. These bots were also ordered to scan invoices received via email, remove them from document management systems and begin approval processes specific to the department. The outcomes were impressive: the time spent on the AP process assisted by the use of manual data entry decreased by 85 per cent, and invoice processing time

was reduced to less than three days instead of an average of 10 days. The strategies of modernisation employed by the British Columbia Institute of Technology (BCIT) involved the reengineering of its procurement and budgeting procedures by the utilisation of the Oracle Fluid User Interface (UI) of PeopleSoft and the Page Composer. Through enhancing the user experience, making mobile access more user-friendly, and being more strict towards the budget policy, BCIT got a more favourable position. The designed system was described as being mobile-friendly through dashboards, built with budgetary control and automatic notification. Because of this, the procurement approval rates have grown by 40, and the procurement cycle times have decreased by 25. High departmental satisfaction and responsibility were also caused by the better user interface. In another hybrid cloud integration, the Australian Taxation Office (ATO) has enhanced its ERP by retaining the basic PeopleSoft functionality on premise and integrating with Amazon Web Services (AWS) to store files and conduct analytics. The information was removed, transformed and loaded towards the AWS Glue and Redshift to develop enhanced reporting and visualisation of the information from PeopleSoft. In addition, the REST APIs have also assisted in the real-time data sharing of the ERP system and the analytics environment. This hybrid model had the outcome of reducing the time to access data by 60 per cent in order to support compliance reporting and contribute to real-time forecasting and meeting the demands of national data residency. The other plausible example of PeopleSoft modernisation is the automation of budget planning processes in the city of Toronto. PeopleSoft General Ledger (GL), which is the cloud-based Enterprise Performance Management (EPM), was integrated with an Oracle Hyperion Planning to facilitate submissions of budgets and forecasting in the city. The integration has offered automated data balancing, dynamic variance reporting and workflow validation of departmental budgetary inputs. This reduced the budget planning process that was six months to three months, and it increased the transparency of the budget formulation and tracking. These live-time applications lead to certain intersectoral benefits of PeopleSoft modernisation. Automation by RPA and AI has resulted in high levels of efficiency that have reduced workloads and improved the rate of transactions. The cloud

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integration has brought about scalability and high data security, as well as reduced overhead in the management of the infrastructure by the systems. There are also the internal controls, which are improved, user satisfaction, enhanced and timely approvals ensured as a result of the optimised workflows triggered by the BPM tools and real-time dashboards. In either case, an updated market made the way for more open and flexible financial practices consistent with the institutional goals. However, modernisation had its own share of challenges that had to be overcome as well. The customisations that were previously developed over decades in the past were characterised by the tendency to make cloud migration and the integration of automation a challenging process. The problem of data consistency and synchronisation between old and new systems was also a fundamental problem, especially when adopting storage facilities within the premises to cloud services. The change resistance among the organisations (especially among the large social institutions) was also a threat to the project timeline and acceptance amongst the users. To resolve these issues, most organisations have applied risk-managed strategies, such as piloting non-critical modules (e.g., travel and expense), middleware platforms (including Oracle Integration Cloud or MuleSoft), role-based training and change management curriculum, etc. All these real-time applications have served to prove that modernisation of PeopleSoft Financial Systems is not just an option, but it will surely provide a measurable value when adopted in a strategic manner. Modernisation in organisations has been successfully implemented in organisations that have high auditing rates, fast decision-making and high user satisfaction rates. The case studies offer a replicable model of how other organisations may equally upgrade their old ERP systems to intelligent, agile and future-oriented financial systems.

5. Future Directions

The modernisation of PeopleSoft Financial Systems is a dynamic field of study and business practice, which is still under development. Although the existing modernisation strategies have their tangible advantages, some directions of modernisation should be explored and researched:

5.1. Artificial Intelligence-Based Forecasting Financial Management

The future step in ERP system automation will probably be the artificial intelligence (AI) models that will be able to predict cash flows, optimise budgets,

and conduct anomaly detection in real-time. The combination of the PeopleSoft and AI platforms might also increase forecasting and fraud detection processes.

5.2. Self-Healing and Self-directed ERP Operations

New possibilities are offered by the development of AIOps (Artificial Intelligence in IT Operations) and self-healing systems. PeopleSoft logs can be monitored using AIOps frameworks and detect performance bottlenecks as well as automatically resolve system issues, therefore enhancing operational uptime.

5.3. The ERP Integration using Microservices Architecture

Switching to the microservices-based ERP system could provide the chance to upgrade the system in a modular way, facilitate integrations with third parties, and promote the flexibility of the system. Studies on breaking down the modules of PeopleSoft into service units are on the rise.

5.4. Financial Audit Trails Concepts/Block chain

The block chain technology also introduces a new system for increasing the level of openness and indispensability of the financial documentation in the system of PeopleSoft. Auditability and trust in the financial reporting can be improved with the implementation of distributed ledgers in procurement and accounts payable.

5.5. Redesigning Workflow Human Centred

Modernisation must also be user experience-oriented (UX). Human-computer interaction (HCI) and change management studies must be incorporated into the ERP modernization in order to enhance the adoption rate and satisfaction of the workforce. Democratisation of IT control can be done through a focus on low-code/no-code tools of workflow customisation.

5.6. Common Modernisation Frameworks

The development of an elaborate, cross-industry model detailing a standardised procedure of updating the old ERP systems, such as PeopleSoft, still remains. These frameworks must touch on strategy, governance, technical implementation and outcomes measurement.

Conclusion

The modernisation of PeopleSoft Financial Systems is not just an IT project but a significant change of enterprise strategy that cuts across the performance of the organisation, compliance, and financial

flexibility. Although this was once the state-of-the-art architecture of the PeopleSoft legacy, there are major drawbacks with this architecture in the current digital ecosystem. RPA and AI can be used to incorporate automation and minimise the number of mistakes, and enhance efficiency in standard financial processes. With cloud integration, organisations are able to scale their ERP systems, as well as make them available and cost-effective, to align their ERP systems with the overall goals of digital transformation. Modern BPM tools and intelligent rules engines enable workflow optimisation, which enables institutions to facilitate the streamlining of the approval process and end-to-end visibility in the financial operations. The intended theoretical framework- Multi-layer Modernisation Model (MLMM) provides a conceptual basis for instituting modernisation efforts in a gradual, modular, and risk-averse form. Modernisation is not easy and has challenges like customisation of legacy, data migration, resistance to change and integration overhead, although it is promising. Innovative technologies such as AI, blockchain, and microservices were only mentioned in the future research, which should further develop the capabilities of PeopleSoft. The cross-sectoral frameworks and governance standards are necessary to prime organisations on sustainable ERP modernisation paths. The way ahead is to make PeopleSoft more of a responsive, intelligent, cloud-connected finance ecosystem that enables decision-making, innovation, and long-term competitiveness instead of a legacy transactional system.

References

- [1]. Wagner, B. J., & Monk, E. F. (2011). Concepts in enterprise resource planning. South-Western.
- [2]. Klaus, H., Rosemann, M., & Gable, G. G. (2000). What is ERP?. Information systems frontiers, 2(2), 141-162.
- [3]. Singh, R., & Qin, X. (2023). WisDOT Skills Readiness and Knowledge Management Project.
- [4]. Lacity, M., & Willcocks, L. P. (2017). Robotic process automation and risk mitigation: The definitive guide. SB Publishing.
- [5]. Dumas, M., Rosa, L. M., Mendling, J., & Reijers, A. H. (2018). Fundamentals of business process management. Springer-Verlag.
- [6]. Laursen, G. H. (2011). Business analytics for sales and marketing managers: How to compete in the information age (Vol. 41). John Wiley & Sons.
- [7]. Le Loarne, S. (2005). Working with ERP systems—Is big brother back?. Computers in Industry, 56(6), 523-528.
- [8]. Anderson, L. (2006). Understanding PeopleSoft 8. John Wiley & Sons.
- [9]. Waloszek, W., & Rizun, N. (2020). Contextual ontology for tonality assessment. Procedia Computer Science, 176, 723-732.
- [10]. Pihir, I. (2019). Business process management and digital transformation. Economic and Social Development: Book of Proceedings, 353-360.
- [11]. Anirudh, M. P. (2024). Migrating Legacy Systems to the Cloud: Challenges and Best Practices.
- [12]. Kaya, C. T., Türkyılmaz, M., & Birol, B. (2019). Impact of RPA technologies on accounting systems. Muhasebe ve Finansman Dergisi, (82).
- [13]. Mhaskey, S. V. Identifying and Mitigating Risks in ERP Customizations: Common Pitfalls and Best Practices. International Journal of Computer Applications, 975, 8887.
- [14]. [14] Jhurani, J. (2022). Driving Economic Efficiency and Innovation: the impact of workday financials in cloud-based ERP adoption. International Journal of Computer Engineering and Technology (IJCET) Volume, 13(3), 135-145.
- [15]. Sadiq, S., Governatori, G., & Namiri, K. (2007, September). Modeling control objectives for business process compliance. In International conference on business process management (pp. 149-164). Berlin, Heidelberg: Springer Berlin Heidelberg.
- [16]. Bostrom, R. P., & Heinen, J. S. (1977). MIS problems and failures: A socio-technical perspective. Part I: The causes. MIS quarterly, 17-32.
- [17]. Arpacı, I., Yardımcı, Y. C., Özkan, S., & Turetken, O. (2012). Organizational adoption of information technologies: A literature review. International Journal of e-business and e-government Studies, 4(2), 37-50.

- [18]. DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, 19(4), 9-30.
- [19]. Hoffmann, F. G. M., & Weill, P. (2007). Banknorth: Designing it Governance for a Growth-Oriented Business Enviornment.
- [20]. Light, B. (2001). The maintenance implications of the customization of ERP software. *Journal of software maintenance and evolution: research and practice*, 13(6), 415-429.
- [21]. Robert Jacobs, F., & 'Ted' Weston Jr, F. C. (2007). Enterprise resource planning (ERP)—A brief history. *Journal of Operations Management*, 25(2), 357-363.