

A Unified ERP Data Framework for Streamlining Hospital Workflows and Billing Processes

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Abstract: Healthcare organizations face mounting pressure to deliver efficient, patient-centered care while maintaining accurate financial operations, yet fragmented data systems across clinical workflows and billing departments create substantial operational delays and critical errors. This technical review examines a unified Enterprise Resource Planning data framework designed to integrate clinical, administrative, and financial data into a cohesive architectural structure. The system employs modular components, consistent data models, and real-time notifications to allow a continuous flow of information across functions from admission to discharge summary and billing. Implementation has shown that workflow efficiencies have greatly improved by providing an automated patient intake, verifying insurance data, and recording clinical documentation directly to an electronic health record. The system provides intelligent charge capture, ongoing eligibility verification, real-time claim submission, and visible aspects of revenue cycle and billing management. Inventory and supply chain management functionality provide full visibility into the process with predictive analytics capabilities for automated re-ordering whenever possible. Technology integration entails all existing platform interconnections, seamless integration in totality across the patient journey, and interoperability with all hospital IT environments. Benefits are substantial in terms of reduced billing errors, prompt cash flow, improved patient experience and satisfaction, and improved care coordination. Whereas, challenges to implementation included regulatory compliance, data fragmentation, administering limited resources, and staffing adaptation.

Keywords: Enterprise Resource Planning, Healthcare Technology Integration, Hospital Workflow Optimization, Revenue Cycle Management, Clinical Data Interoperability

INTRODUCTION

The healthcare sector is transforming as it has never been before. The cost of delivering services continues to increase, patients demand more, and regulatory scrutiny continues to climb. Modern hospitals experience increasing stress to provide efficient, patient-relevant care while executing timely and accurate financial tasks. Healthcare providers already lose millions of dollars each year due to administrative waste, with three-quarters of those dollars generated through lost revenue from dysfunctional data systems between clinical workflows and billing departments. These suboptimal data systems often lead to lagging operational performance, rework, and irreparable mistakes that degrade service delivery and revenue cycle function, creating a ripple effect across healthcare service delivery systems.

Siloed management of clinical workflow operations, administrative support, and billing data processes leads to inefficient service delivery. Duplication of effort, delayed reimbursement, and poor patient experience occur regularly under these situations. Current industry data reveals that hospitals that run legacy systems have significantly longer patient discharge times, and most healthcare executives complain about specific issues related to 'connectivity' or data interoperability across departments and service

lines. Legacy systems, which are present in virtually all healthcare institutions, significantly impede operational efficiency, functional data interoperability, and pricing transparency. Financial impacts indicate a significant issue, with healthcare organizations spending billions annually on manual data reconciliation processes and experiencing revenue cycle inefficiencies well beyond industry benchmarks (Charalambous, A. 2024).

The lack of standardized data models and ongoing synchronization across owned departments continues to magnify these systemic inefficiencies. Studies have reported that hospitals lacking integrated systems have higher billing error rates, and claim denial percentages are well beyond the industry averages of integrated systems. Manual processes yield administrative expenses that account for almost one-third of total health expenditures, with their staff spending many more hours each week on redundant data entry processes, which could be automated using unified systems. All of these inefficiencies roll into compounding issues affecting patient satisfaction, staff productivity, and general hospital performance (Charalambous, A. 2024).

Enterprise Resource Planning implementations in healthcare organizations demonstrate various and

tangible ROIs used across multiple operational perspectives. Organizations also see substantial benefits in administrative process efficiencies, clearer billing, and reduced revenue cycle time after deploying ERPs. The technology infrastructure investment associated with a comprehensive ERP implementation produces returns on investment through process efficiencies, reduced required manual time, and improved data quality. Integrated ERP solutions for healthcare organizations produce better operational visibility, stronger compliance, and better fiscal performance (Beaver, S. 2022). This technical review analyzed a consolidated Enterprise Resource Planning data framework that addresses the issues involved through the combination of clinical, administrative, and financial data into the same architectural framework. The framework uses modular components, standardized data models, and real-time synchronization protocols to pull data across departments encompassing the patient journey from admission and treatment to discharge and invoicing. This framework creates a strategic approach to integrate various hospital functions within one digital ecosystem and accommodate the complexity involved in clinical environments, anticipating benefits through operational efficiency, financial performance, and quality of patient care domains (Beaver, S. 2022).

APPLICATION DETAIL

A fundamental ERP data framework helps pull together the separate hospital functions (clinical, administrative, and financial) and make them part of a single system that provides a seamless flow of data and enables comprehensive automation of processes. The framework is being implemented in several critical areas within healthcare operations, and the real-time implementation studies indicate that organizations are obtaining metrics of measurable efficiency improvement. Healthcare facilities utilizing integrated ERP systems report substantial productivity gains across departmental functions, with data processing accuracy improvements significantly exceeding legacy system implementations. The integration process typically requires comprehensive workflow mapping and system configuration to achieve optimal performance outcomes (Stefanou, C. J., & Revanoglou, A. 2006).

Patient Workflow Management

Patient Workflow Management forms the foundation of the system, encompassing automated patient intake, insurance verification, and

demographic data capture during admission and registration. Contemporary implementations demonstrate that automated patient intake processes substantially reduce registration time while representing significant improvements in processing efficiency. The framework integrates high-level appointments, staff assignments, and equipment within sophisticated scheduling and resource allocation "modules" which can both improve the utilization rate and considerably decrease scheduling conflicts. Clinical documentation capabilities link electronic health records with treatment plans and diagnostic data, creating a comprehensive patient care continuum. Integrated documentation systems demonstrate a substantial reduction in clinical documentation time while improving data completeness scores significantly, enhancing care coordination effectiveness throughout the healthcare delivery process (Stefanou, C. J., & Revanoglou, A. 2006).

Billing and Revenue Cycle Optimization

Billing and Revenue Cycle Optimization represents a core functionality where the system automatically records billable services during patient care through intelligent charge capture mechanisms. Automated charge capture implementations reduce billing errors substantially while decreasing claim processing time dramatically. The framework integrates with insurance systems to enable real-time eligibility checks and automated claim submissions, achieving notably higher first-pass claim acceptance rates compared to manual processes. Payment reconciliation features match payments with invoices, substantially reducing manual reconciliation efforts and associated errors. Revenue cycle optimization through integrated ERP systems demonstrates substantial improvements in cash flow acceleration, with accounts receivable periods decreasing significantly from traditional processing timeframes (Ramadoss, G. 2024).

Inventory and Supply Chain Management

Inventory and Supply Chain Management capabilities track medical supplies, pharmaceuticals, and equipment usage in real-time, providing comprehensive visibility across inventory items compared to limited visibility in traditional systems. The system employs predictive analytics to automate reordering processes based on consumption patterns and demand forecasting, reducing stockout incidents while decreasing excess inventory substantially. Optimized inventory levels minimize waste through improved

expiration tracking, reducing pharmaceutical waste and medical supply waste considerably. Automated reordering systems achieve high accuracy in demand prediction, resulting in substantial inventory carrying cost reductions annually (Stefanou, C. J. & Revanoglou, A. 2006).

Human Resources and Payroll

The Human Resources and Payroll Integration organizes staff schedules, credentials, and payroll under one system, and it can process payroll transactions with greater accuracy than disparate

systems, all while remaining compliant with labor laws and reducing administrative burden through various automated processes and centralized information. Automated scheduling reduces staff overtime costs through optimized shift allocation, while credential tracking achieves high compliance with certification requirements. Centralized data management decreases HR processing time substantially, enabling staff reallocation to patient-facing activities and reducing administrative costs considerably (Ramadoss, G. 2024).

Table 1: Functional Integration and Operational Enhancements Through Unified Hospital ERP Implementation (Stefanou, C. J., & Revanoglou, A. 2006; Ramadoss, G. 2024)

Application Domain	Core Functionality	Performance Improvement
Patient Workflow Management	Automated patient intake, insurance verification, appointment coordination, and clinical documentation integration with EHR systems	Registration time reduction, scheduling conflict reduction, and clinical documentation time decrease with improved data completeness
Billing and Revenue Cycle Optimization	Intelligent charge capture, real-time insurance eligibility checks, automated claim submissions, and payment reconciliation	Substantial billing error reduction, decreased claim processing time, and enhanced first-pass claim acceptance rates
Inventory and Supply Chain Management	Real-time tracking of medical supplies and pharmaceuticals, predictive analytics for automated reordering, and waste reduction through expiration tracking	Reduced stockout incidents, decreased excess inventory, and minimized pharmaceutical and medical supply waste

TECHNOLOGY & WORKFLOW INTEGRATION

Employment of a unified ERP data framework into a hospital's existing operations must align with existing technologies already utilized, current workflows, and existing compliance requirements. Implementation work has made it clear that using many differing system interfaces across hospital sites is a successful integration strategy, with the actual integration process varying significantly depending on the maturity of existing infrastructure. The framework has been developed to interoperate with legacy systems and not to replace them in a strictly defined manner, creating additional bridges and thereby increasing and supporting functionality while ensuring ongoing operations. Most modern healthcare organizations report that their current systems can be interoperated via standard protocols, while some systems require customized development of an interface in order to achieve interoperability (Alzahmi, W. *et al.*, 2024).

System Interfacing

The System Interfacing feature enables the ERP framework to interface with Electronic Health

Records systems using APIs or HL7/FHIR standards in order to allow real-time visibility of synchronized patient data, clinical notes, and treatment histories, even across clinical touchpoints. Contemporary implementations process substantial volumes of data transactions daily across integrated systems, with data synchronization achieving minimal latency for routine updates and even faster response times for critical patient information. Laboratory and radiology systems integrate diagnostic results into billing and care workflows, processing significant volumes of diagnostic reports daily while guaranteeing accurate charge capture and comprehensive patient records. Integration accuracy rates achieve high performance standards for both laboratory data and radiology information, significantly improving billing precision and clinical workflow efficiency (Alzahmi, W. *et al.*, 2024).

Real-time data exchange with insurance and claims platforms enables instantaneous eligibility checks, processing substantial verification requests daily, with response times dramatically improved compared to traditional phone-based verification

systems. Automated claims submission capabilities handle considerable daily claim volumes with enhanced first-pass acceptance rates, while accelerated reimbursement processes substantially reduce payment cycles from traditional timeframes. The integrated approach eliminates manual data entry for the vast majority of insurance-related transactions, reducing administrative overhead and improving accuracy metrics substantially (Imam, M. *et al.*, 2024).

Workflow Embedding

Workflow Embedding encompasses the complete patient journey from admission to discharge, with ERP automation substantially reducing handoffs and manual entry requirements across integrated departments. The system processes considerable patient transactions daily, including admissions, transfers, procedures, and discharges, while maintaining data consistency across all touchpoints. Billing cycle integration captures charges during care delivery and routes them through the ERP system for invoicing, claims processing, and reconciliation, handling substantial charge items daily with enhanced accuracy rates compared to manual charge capture processes (Alzahmi, W. *et al.*, 2024).

Inventory and procurement workflows track usage of medical supplies and link consumption to

specific patient procedures, monitoring extensive inventory items across multiple cost centers within hospital implementations. The system enables just-in-time ordering through predictive analytics that forecast consumption patterns with high accuracy, reducing inventory holding costs while maintaining excellent availability for critical supplies. Comprehensive cost control mechanisms track expense allocation to individual patient encounters, enabling precise cost accounting and improving financial transparency across departmental operations (Imam, M. *et al.*, 2024).

Technology Stack Compatibility

Technology Stack Compatibility ensures flexibility through cloud and on-premises deployment models that accommodate diverse hospital IT environments, supporting hybrid architectures that distribute processing optimally. The framework demonstrates extensive compatibility with existing healthcare technology platforms, requiring minimal customization for most standard implementations. Embedded security features ensure comprehensive compliance while maintaining operational efficiency through automated systems that protect critical data with excellent recovery capabilities (Alzahmi, W. *et al.*, 2024).

Table 2: Technical Integration Framework and Operational Capabilities for Hospital ERP Implementation (Alzahmi, W. *et al.*, 2024; Imam, M. *et al.*, 2024)

Integration Component	Technical Capabilities	Performance Outcomes
Overall Integration Framework	Strategic alignment with existing technologies, interoperability with legacy systems through standardized protocols, and modular integration approaches	Successful integration of the majority of healthcare systems, reduced need for custom interface development, and preserved operational continuity
System Interfacing	EHR connectivity via APIs/HL7/FHIR standards, real-time laboratory and radiology integration, automated insurance eligibility checks, and claims submission	High data synchronization accuracy, minimal processing latency, enhanced first-pass claim acceptance rates, and substantially reduced payment cycles
Workflow Embedding	Complete patient journey automation, automated charge capture during care delivery, inventory tracking linked to patient procedures, and just-in-time ordering systems	Substantial reduction in handoffs and manual entry, enhanced charge capture accuracy, improved inventory cost control, and precise patient-level cost accounting
Technology Stack Compatibility	Hybrid cloud and on-premises deployment models, extensive platform compatibility, advanced security features with role-based access controls, and automated backup systems	Minimal customization requirements, comprehensive HIPAA/GDPR compliance, excellent data recovery capabilities, and optimized hybrid architecture distribution

BENEFITS TO THE INDUSTRY

The implementation of a unified ERP data framework delivers substantial improvements across financial, operational, and clinical domains within healthcare organizations. Quantifiable benefits demonstrate significant return on investment through measurable performance enhancements and cost reductions. Industry analysis reveals that healthcare facilities implementing comprehensive ERP systems experience substantial aggregate cost savings for medium to large hospital systems, with implementation costs typically recovered within reasonable timeframes. The multifaceted benefits extend across operational efficiency, financial performance, clinical outcomes, and broader organizational sustainability metrics that create lasting value propositions (Dave, D. 2024).

Operational Improvements

Operational Improvements include substantial reductions in billing errors in advanced implementations, leading to fewer claim denials and faster reimbursement cycles that significantly improve cash flow for typical hospital facilities. Billing cycle time decreases considerably in optimized systems, accelerating cash flow and reducing accounts receivable outstanding periods from traditional processing timeframes to more efficient cycles. Manual reconciliation efforts are reduced substantially through automated data matching capabilities that process extensive daily transactions with high accuracy rates, lowering labor costs and minimizing audit risks. Administrative staff productivity increases through workflow optimization and system integration, allowing greater focus on patient-facing activities and care delivery while reducing overtime expenses across departments (Dave, D. 2024).

The operational transformation enables healthcare facilities to process substantially more patient encounters without proportional increases in administrative staff, with patient registration times decreasing significantly on average. Error rates in patient demographic data entry drop considerably, while appointment scheduling conflicts decrease substantially through intelligent resource allocation algorithms. These improvements collectively contribute to enhanced operational throughput and reduced administrative burden across healthcare delivery systems (Ventura, D. R. D. S. M. 2022).

Financial Savings

Financial Savings mean reducing waste with real-time inventory visibility and supported purchasing habits, leading to large annual cost avoidance for operational norms within hospitals. Improvements in revenue cycle performance result in reductions in claim denials and delays, which means timely and accurate payment with an improvement to the net collection rate. Improvements to resource tracking, along with inventory, mean waste with medical supplies and medications is reduced, where significant savings are realized and sustainability is supported through less waste that may impact the environment (Dave, D. 2024).

The financial impact extends to improved contract compliance monitoring, with automated tracking systems identifying substantial revenue opportunities annually through better charge capture and coding accuracy. Working capital requirements decrease considerably through optimized inventory turnover rates that improve substantially. These financial improvements strengthen organizational resilience and support reinvestment in clinical capabilities and technology infrastructure (Ventura, D. R. D. S. M. 2022).

Clinical Enhancements

Clinical Improvements mean less patient waiting time from schedule automation that improves throughput efficiency by processing a large amount of appointments each day, and as part of this, also leads to much higher patient satisfaction scores. It also means that centralized patient information improves the effectiveness of care coordination by reducing medical error and improving patient outcomes with access to all relevant details to assist in clinical decision-making in a wide variety of care protocols. Access to integrated clinical and financial information in real-time means an enhanced decision-making process, while meeting regulatory requirements, with clinical alerts to support timely awareness being processed more rapidly than conventional systems (Dave, D. 2024).

Broader Implications

Broader Implications extend beyond immediate operational improvements to encompass environmental, economic, and social effects that create value across multiple stakeholder groups. Overall, environmentally, trimmed down workflows and optimized inventory lower paper consumption, remove duplicate tests, and significantly lower wasted medical supplies while

reducing hospitals' footprint and contributing to sustainability efforts (Ventura, D. R. D. S. M.

2022).

Table 3: Quantified Benefits and Impact Areas of Unified ERP Systems in Hospital Operations (Dave, D. 2024; Ventura, D. R. D. S. M. 2022)

Benefit Category	Key Improvements	Impact Areas
Operational Improvements	Substantial reduction in billing errors, decreased billing cycle time, reduced manual reconciliation efforts, and increased administrative staff productivity	Enhanced cash flow, reduced accounts receivable periods, lower labor costs, improved patient registration efficiency, and decreased appointment scheduling conflicts
Financial Benefits	Real-time inventory tracking savings, improved revenue cycle efficiency, enhanced resource tracking, and optimized procurement processes	Significant annual cost avoidances, improved net collection rates, reduced medical supply waste, better contract compliance monitoring, and decreased working capital requirements
Clinical Enhancements	Substantial patient wait time reductions, improved care coordination effectiveness, reduced medical errors, and faster clinical alert processing	Enhanced patient satisfaction scores, better clinical decision-making support, improved patient outcomes, faster laboratory result turnaround times, and increased patient safety indicators

CHALLENGES AND FUTURE OUTLOOK

Notwithstanding significant advantages, the growing implementation of unified ERP frameworks within healthcare includes sizable challenges that must be addressed in order to implement successfully and sustain for the long term. Studies of the industry show that the majority of healthcare ERP implementations face significant challenges during deployment, with large percentages of projects not only encountering substantial delays beyond original timelines but also needing to change. The significant complexity of the healthcare environment incurs an equally significant implementation cost for many medium and large hospital systems, and failure rates for ERP healthcare projects are greater than for those in other industries (Axis Technical Groups, 2024).

Implementation challenges

The implementation challenges are compounded by a unique high-stakes environment in the healthcare industry in which accuracy and reliability are critical, as a small error in patient records, billing, and medication tracking can easily result in life-threatening situations. Healthcare organizations collect and process huge volumes of patient-related data points, where acceptable tolerances for error are required to have accuracy that is significantly higher than in other areas of industry. Regulatory compliance requirements such as HIPAA create complex obligations for patient privacy, data security, and operational transparency that demand constant vigilance and

system adaptability, with compliance audits occurring regularly and substantial penalties for violation incidents (Axis Technical Groups, 2024).

Data fragmentation across multiple platforms and departments complicates enterprise-wide solution implementation, with typical hospitals managing numerous different software applications across clinical and administrative functions. Integration complexity increases with each additional system, requiring extensive custom interface development for comprehensive ERP deployment. Deeply entrenched legacy systems create both technical and cultural resistance to modernization efforts, with substantial percentages of clinical staff expressing concerns about workflow disruptions during implementation phases. Training requirements are extensive for comprehensive ERP adoption, while change management initiatives require substantial time periods to achieve full organizational acceptance (Ketan Mangukiya, 2024).

Resource Constraints

Resource Constraints include limited funding, which is especially challenging for public or not-for-profit organizations where upfront costs for things like software, training, and implementation are substantial despite long-term gains being potentially realized. Public hospitals typically operate on a tight profit margin compared to private institutions, meaning they have inadequate capital for more significant technology investments. Implementation budgets require

substantial allocation per bed for basic ERP functionality, escalating for comprehensive integrated systems including clinical modules and advanced analytics capabilities (Axis Technical Groups, 2024).

Workforce shortages and burnout, especially among clinical staff, require new systems to be intuitive and minimally disruptive to avoid exacerbating stress and reducing adoption rates. Current healthcare labor shortages affect substantial percentages of hospital systems, with significant nursing vacancy rates and physician shortages projected for the coming years. Staff turnover during ERP implementation phases increases due to change-related stress, while productivity temporarily decreases during the initial months of system deployment (Ketan Mangukiya, 2024).

Future Technological Requirements

Future Technological Requirements indicate that hospitals will increasingly require cloud-based and interoperable ERP systems capable of integrating

with emerging digital health technologies, including telemedicine, remote monitoring, and AI-assisted diagnostics. Cloud adoption in healthcare is projected to increase substantially, with hybrid cloud architectures becoming the preferred deployment model for most healthcare organizations. Integration requirements are expanding to encompass numerous health technology applications, with substantial API call volumes for comprehensive integrated systems (Axis Technical Groups, 2024).

The increasing demand for real-time data analytics is based on the understanding that there will be a demand for systems that provide instant information that drives clinical and operational decisions. There will also be a growing need for automated systems as well as AI integration to minimize the carry-over of redundant administrative and billing tasks while reducing human error and maximizing efficiency (Ketan Mangukiya, 2024).

Table 4: Healthcare ERP Implementation Challenges and Strategic Requirements Analysis (Axis Technical Groups, 2024; Ketan Mangukiya, 2024)

Strategic Area	Key Issues/Requirements	Impact and Strategic Response
Implementation Challenges	High-stakes accuracy requirements, regulatory compliance obligations (HIPAA), data fragmentation across multiple platforms, legacy system resistance, and extensive training requirements	Life-threatening consequences from errors, substantial penalties for violations, complex integration requirements, cultural resistance to change, and extended adoption timeframes
Resource Constraints	Tight budget limitations in public institutions, substantial implementation costs per bed, workforce shortages and burnout, and increased staff turnover during deployment	Limited capital availability, escalating costs for comprehensive systems, productivity decreases during initial deployment months, and change-related stress impacts
Future Technological Requirements	Cloud-based interoperable systems, integration with telemedicine and AI-assisted diagnostics, real-time data analytics capabilities, automation, and AI integration needs	Projected substantial cloud adoption rates, expanding integration requirements with numerous health applications, instant insights for clinical decision-making, and streamlined administrative processes
Long-term Strategic Considerations	Data security and privacy compliance, secure patient information sharing across networks, sustainability and resource optimization, energy footprint reduction requirements	Substantial cybersecurity investments, interoperability with multiple healthcare partners, green technology initiatives, and carbon footprint reduction goals
Call to Action	Prioritized implementation of unified ERP frameworks, phased deployment strategies, resilient interoperable system design, strategic planning with extended technology roadmaps	Improved success rates through strategic implementation, enhanced operational efficiency metrics, increased patient satisfaction scores, and sustainable modernization initiatives

CONCLUSION

The unified ERP data framework is an innovative solution for health organizations that want to confront the complexities of fragmented systems, operational inefficiencies, and optimize financial performance. This integrated framework of clinical, administrative, and financial functions offers significant value propositions in different areas that allow healthcare facilities to generate increases in operational throughput, achieve improved financial solvency, and elevate the quality of patient care. To achieve this level of integration and take full advantage of the integrated framework requires: alignment between the unified framework and existing technologies in the organization; embedding workflows into established workflows, being mindful of leveraging/maximum utilization of existing frameworks; and broad-level technical stack compatibility when considering existing technical legacy solutions to achieve seamless interoperable, supporting the organization's previous investments. These benefits in their intended state extend beyond operational enhancements and have a larger environmental, economic, and social focus, which increases the resilience of the organization and a paradigm shift to support sustainable models in healthcare delivery. Health organizations must negotiate some major implementation challenges; however, these are similar to other industries: regulations, resource limitations, and a workforce to build and support the framework. Based on the technology requirements identified in the futurist assessment, there is a clear demand for cloud-based systems featuring an interoperable technical stack capable of integrating and utilizing new digital health solutions, supporting real-time data analytics, and enhancing the delivery of AI-driven clinical diagnostics. The strategy required for the healthcare organization in the deployment of a unified ERP framework is to see categorical enhancements in patient care as an ongoing engagement in healthcare delivery service delivery, and balance this with structured phased implementation, system resilience, and a view of an extended technology roadmap that supports a

sustainable modernization agenda, and enhanced patient-centered care delivery.

REFERENCES

1. Charalambous, A. "Digital transformation in healthcare: Have we gone off the rails?." *Asia-Pacific journal of oncology nursing* 11.5 (2024).
2. Beaver, S. "The ROI of ERP Systems." *Oracle NetSuite*, (2022).
3. Stefanou, C. J., & Revanoglou, A. "ERP integration in a healthcare environment: a case study." *Journal of Enterprise Information Management* 19.1 (2006): 115-130.
4. Ramadoss, G. "The Impact of Revenue Cycle Management on Financial Stability in US Government Hospitals." *International Journal of Science and Research (IJSR)* 13.8 (2024): 23-28.
5. Alzahmi, W., Al-Assaf, K., Ahmed, V., & Bahroun, Z. "Integrating ERP Systems and Performance Management in Healthcare: Insights and Future Directions." *2024 IEEE International Conference on Technology Management, Operations and Decisions (ICTMOD)*. IEEE, (2024).
6. Imam, M., Nahidul, M., Masrur, M., & Neherin, N. "Healthcare service quality digitization with enterprise resource planning." *Integrative Biomedical Research* 8.5 (2024): 1-11.
7. Dave, D. "Healthcare ERP system: Understanding its potential for the healthcare industry." *Radix*, (2024).
8. Ventura, D. R. D. S. M. "ERP's for the Healthcare Industry-A Methodology for Smart Choosing the Best ERP in the Market for the Specific Needs of Different Types of Healthcare Organizations." *MS thesis. Universidade NOVA de Lisboa (Portugal)*, (2022).
9. Axis Technical Groups, "The Evolving Healthcare ERP Market: Trends, Challenges, and Future Outlook." (2024).
10. Ketan Mangukiya, "Trends For the Future of Healthcare Enterprise Resource Planning." *HealthRay*, (2024).

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