



Optimizing Supply Chain Management through ERP Odoo Implementation: A Systematic Literature Review

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Abstract

The growing complexity of supply chain operations and the acceleration of digital transformation have heightened organizational demand for integrated enterprise systems, yet the specific contribution of Odoo-based ERP to supply chain optimization remains fragmented across the literature and underexplored as a dedicated research focus. Enterprise Resource Planning (ERP) systems have emerged as indispensable technological infrastructures for coordinating business processes and optimizing supply chain performance, and among contemporary ERP solutions, Odoo has attracted notable interest due to its open-source architecture, modular flexibility, and scalability. This study aims to synthesize the scattered evidence on how Odoo-based ERP contributes to supply chain integration, operational efficiency, and Industry 4.0-enabled transformation, and to distill the critical success factors that shape its adoption. A Systematic Literature Review (SLR) methodology following the PRISMA 2020 framework was employed, synthesizing 41 Scopus-indexed journal articles published between 2021 and 2025 across four analytical themes. The synthesis shows that ERP systems consistently strengthen supply chain integration, process automation, and operational visibility, and that these benefits are amplified when ERP is combined with AI, IoT, Blockchain, Cloud Computing, and Big Data Analytics; at the same time, the realization of these benefits is conditional on organizational readiness, leadership commitment, employee competencies, and structured change management rather than on technology adoption alone. By consolidating this fragmented evidence, the review offers a synthesized understanding of Odoo's role in SCM optimization and evidence-based guidance applicable to Shedia Grup and comparable open-source ERP-adopting organizations.



Keywords: *Odoo ERP, Enterprise Resource Planning, Supply Chain Management, Digital Transformation, Industry 4.0*

1. Introduction

1.1. Background

The proliferation of Industry 4.0 technologies, comprising Artificial Intelligence (AI), Big Data Analytics, Cloud Computing, Blockchain, and the Internet of Things (IoT), has compelled organizations to develop integrated enterprise systems capable of managing large information volumes across interconnected supply chain networks (Han, 2024; Taifa & Nzowa, 2025; Zdravkovic, 2022). As supply chains grow more dynamic, organizations require real-time visibility, interoperability, and coordinated decision-making to sustain competitiveness and operational resilience. These pressures are driven in large part by persistent issues within supply chain management itself: fragmented information integration across supply chain nodes, limited end-to-end visibility, inefficient and largely manual process execution, and the absence of data-driven decision-making mechanisms. These issues create sustained demand for enterprise systems capable of unifying information flows and enabling coordinated, evidence-based action (Han, 2024; Taifa & Nzowa, 2025; Zdravkovic, 2022).

Enterprise Resource Planning (ERP) systems have become a central technological platform for addressing these pressures. By consolidating procurement, production, inventory management, logistics, finance, and customer activities within a unified information infrastructure, ERP systems enable information sharing and process synchronization across organizational functions (Ahmad, 2021; Luszczak, 2023). Among open-source ERP solutions, Odoo has gained traction due to its modular scalability and cost-effectiveness, offering end-to-end business process integration that is broadly relevant to organizations across sectors—including small and growing enterprises such as those in the food and beverage industry, the sector to which Shегia Grup, the illustrative context of this review, belongs (Jat, 2025; Soykan, 2025). Research confirms that digitally integrated supply chains enhance resilience, sustainability, and performance through improved visibility and decision-making capabilities (Sihlali & Telukdarie, 2022; Venkatadri, 2021). However, the literature remains fragmented, necessitating a comprehensive synthesis to guide ERP-enabled SCM optimization (Qureshi, 2022; Yan & Ramayah, 2023).

1.2. Problem Statement

Although ERP and SCM research is extensive, the specific contribution of Odoo-based ERP to supply chain optimization remains underexplored. Most studies address general ERP implementation or broader digital transformation without systematically examining



Odoo as a dedicated SCM platform (Yan & Ramayah, 2023; Ziemba & Gago, 2022). Additionally, organizations commonly face challenges when adopting ERP systems that are especially pronounced in an open-source context, including organizational readiness, internal capabilities in system configuration and customization, the availability of user support, change management, cybersecurity, and the long-term sustainability of system development (Nair, 2022; Yao & Azma, 2022), limiting the realization of anticipated performance benefits. A systematic evidence synthesis is therefore required to clarify Odoo ERP's strategic role in SCM optimization.

1.3. Research Questions

- RQ1: How does Odoo-based ERP implementation contribute to supply chain integration?
- RQ2: How does ERP implementation improve operational efficiency and organizational performance?
- RQ3: How do Industry 4.0 technologies strengthen ERP-supported SCM ecosystems?
- RQ4: What critical success factors and challenges influence ERP-enabled SCM initiatives?
- RQ5: What future research opportunities exist regarding Odoo ERP and SCM optimization?
- RQ6: What practical implications can guide Odoo ERP adoption and SCM optimization for Shegia Grup?

1.4. Research Objectives, Gaps & Contributions

This SLR aims to: (1) examine Odoo ERP's role in supply chain integration; (2) analyze ERP contributions to operational efficiency; (3) investigate Industry 4.0 impacts on ERP-SCM ecosystems; (4) identify implementation challenges and critical success factors; (5) explore future research directions; and (6) develop practical implications for Shegia Grup.

Five research gaps are identified: scarcity of Odoo-specific systematic reviews; fragmented ERP-SCM knowledge across domains; limited integration of Industry 4.0 perspectives within Odoo contexts (Nair, 2022; Ziemba & Gago, 2022); insufficient practical guidance for open-source ERP adoption in growing organizations; and absence of synthesized managerial implications for organizations like Shegia Grup. Theoretically, this review consolidates fragmented knowledge around Odoo ERP. Methodologically, the PRISMA-based approach ensures rigor (Qureshi, 2022). Practically, findings support ERP adoption decisions, including emerging opportunities in AI, blockchain, and cloud-based ERP ecosystems (Yan & Ramayah, 2023; Yao & Azma, 2022).

2. Research Methodology

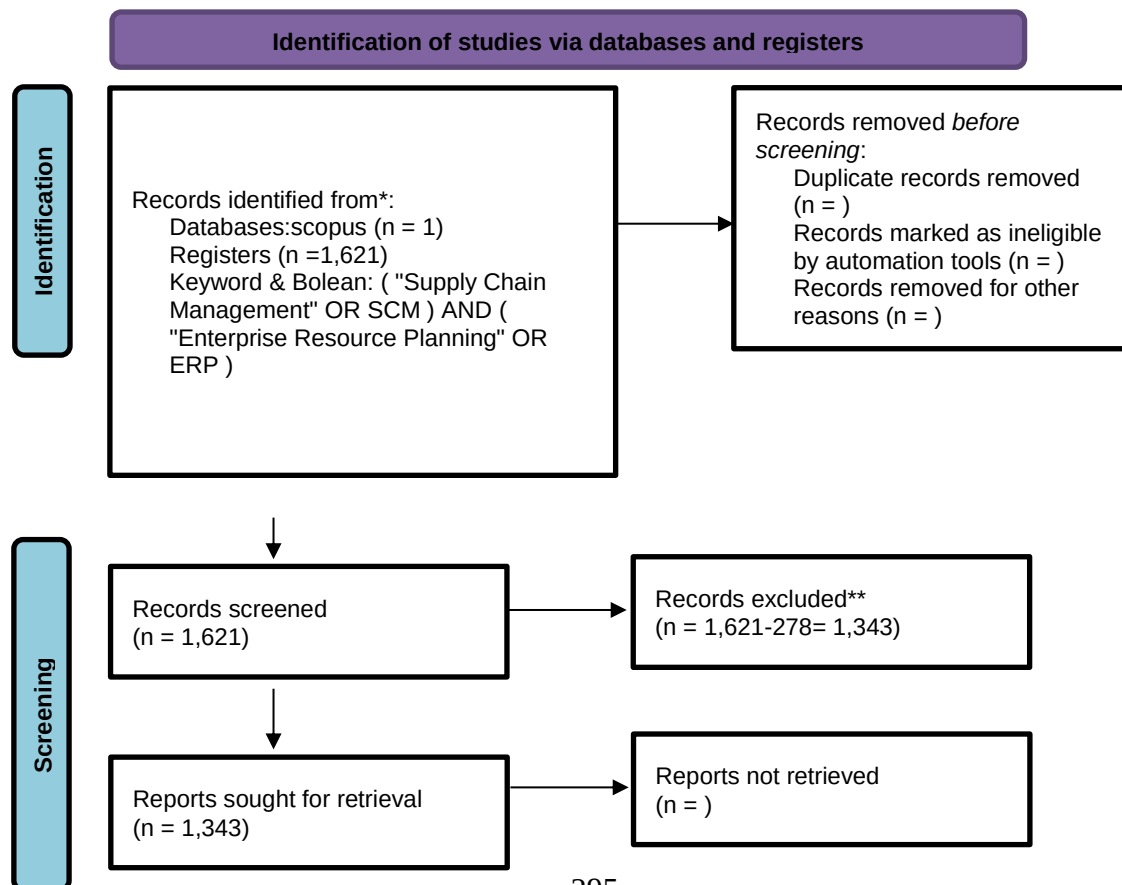
2.1. SLR Approach & Search Strategy

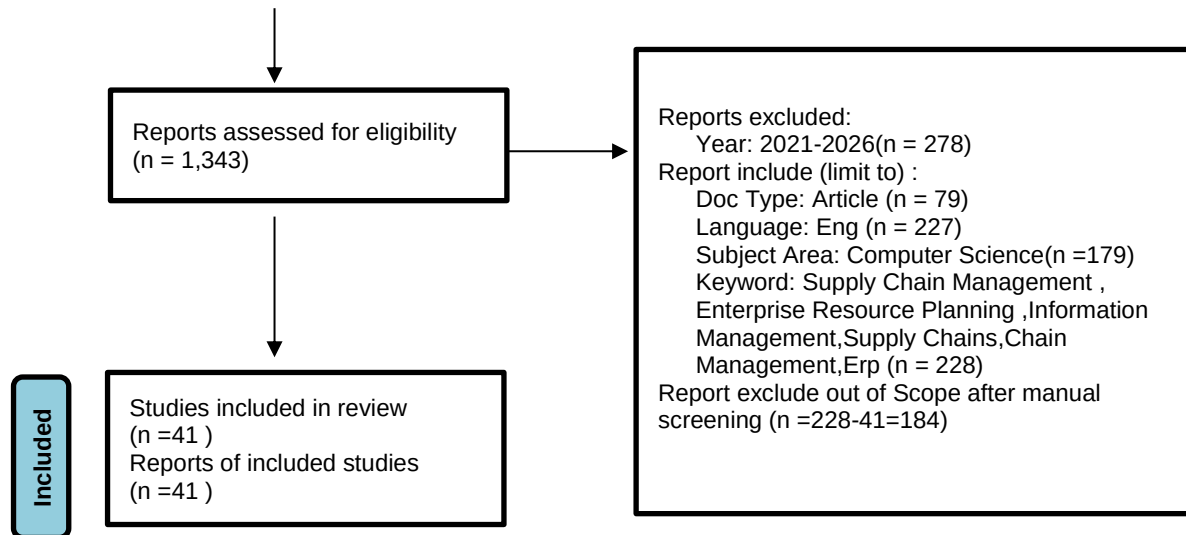
A Systematic Literature Review approach was adopted, providing a rigorous and reproducible method for identifying, evaluating, and integrating diverse evidence while minimizing bias (Qureshi, 2022; Yan & Ramayah, 2023). The review followed established evidence-synthesis principles with focus on ERP implementation, Odoo ERP, supply chain integration, operational efficiency, and Industry 4.0 technologies (Ziemba & Gago, 2022).

Search parameters: Database – Scopus; Keywords – Supply Chain Management, Enterprise Resource Planning, Information Management, Supply Chains, ERP; Time Frame – 2021–2025; Subject Area – Computer Science; Language – English. Boolean query: ("Supply Chain Management" OR SCM) AND ("Enterprise Resource Planning" OR ERP OR Odoo OR "Odoo ERP") AND (optimization OR efficiency).

2.2. PRISMA Framework

Figure 1. PRISMA 2020 Flow Diagram





The PRISMA 2020 framework guided identification, screening, eligibility assessment, and inclusion (Qureshi, 2022). From 1,621 identified Scopus records, 1,343 were excluded in initial screening, leaving 278 records. After applying year, document type, language, subject area, and keyword filters, 228 articles were assessed for eligibility. Manual scope review excluded 184 studies, yielding a final sample of 41 included articles.

2.3. Data Extraction and Analysis

Structured data extraction covered publication details, research objectives, methodologies, industrial contexts, ERP characteristics, SCM dimensions, implementation challenges, and key findings. Thematic synthesis was applied to identify recurring concepts and develop higher-order analytical themes (Nair, 2022), producing four themes: (1) ERP Implementation and SC Integration; (2) Operational Efficiency and Performance Optimization; (3) Digital Transformation and Industry 4.0 in ERP–SCM Ecosystems; and (4) Challenges, Critical Success Factors, and Future Directions.

3. Theoretical Background

3.1. Enterprise Resource Planning (ERP)

3.1.1 Evolution, Open-Source ERP & Odoo

ERP systems have evolved from centralized transaction systems into integrated digital business ecosystems supporting real-time information exchange, advanced



analytics, and cross-enterprise collaboration. Modern ERP platforms increasingly embed cloud computing, AI, big data analytics, IoT, and platform architectures to enable end-to-end process integration and intelligent decision-making (Rathor, 2025; Sarferaz, 2025). Contemporary ERP solutions support seamless interaction among suppliers, customers, and partners through interconnected digital infrastructures, making them strategic platforms for complex, interconnected business environments (Luszczak, 2023; Soykan, 2025).

Odoo has emerged as a leading open-source ERP platform owing to its modular architecture, scalability, and affordability. It delivers lower licensing costs, greater customization flexibility, and improved functional alignment compared with proprietary alternatives, supporting modules for procurement, inventory management, sales, manufacturing, accounting, logistics, and CRM (Jat, 2025; Luszczak, 2023). Despite advantages in agility and workflow adaptability, open-source ERP adoption presents challenges including implementation complexity, cybersecurity risks, and technical expertise requirements (Nair, 2022; Yao & Azma, 2022). Organizations adopting Odoo with appropriate governance achieve substantial improvements in operational performance, process integration, and supply chain coordination.

3.1.2 ERP Benefits and Organizational Integration

By integrating business functions within a unified information environment, ERP systems reduce information silos, improve data accuracy, and support cross-functional collaboration. ERP implementation consistently contributes to operational efficiency, process standardization, resource optimization, and organizational performance improvement (Ahmad, 2021; Canon, 2025). Real-time information accessibility enables managers to support strategic decision-making through comprehensive visibility across organizational activities.

3.2. Supply Chain Management (SCM)

3.2.1 Evolution and Integration

SCM has evolved from logistics-focused approaches into integrated digital supply chain ecosystems. Digital technologies have restructured supply chains from sequential, siloed information flows toward end-to-end connectivity, collaborative decision-making, and ecosystem-wide value creation (Han, 2024; Taifa & Nzowa, 2025). Digital supply chain ecosystems improve agility, resilience, and customer responsiveness through real-time information exchange and predictive capabilities (Sihlali & Telukdarie, 2022; Sislian & Jaegler, 2022). Supply chain integration—coordinating information, material, and financial flows among participants—relies heavily on digital technologies to support real-time sharing and coordinated decision-making (Mitropoulos, 2022; Venkatadri, 2021).



3.2.2 ERP-Enabled SC Performance and Optimization

ERP systems centralize procurement, production, inventory, logistics, distribution, and CRM processes within a unified digital environment (Ahmad, 2021; Luszczak, 2023). Real-time ERP visibility allows managers to monitor inventory movements, supplier activities, and customer demand. ERP environments integrated with cloud computing, analytics, and digital technologies further strengthen SC agility, resilience, and performance through predictive and adaptive operational capabilities (Sai Haree Ram, 2024; Soykan, 2025).

3.3. Digital Transformation and Industry 4.0

Industry 4.0 technologies—AI, Blockchain, IoT, Cloud Computing, and Big Data Analytics—have substantially transformed enterprise operations and SCM. AI enhances ERP-enabled SCM through predictive analytics and intelligent decision support (Dulloo, 2025; Sarferaz, 2025). IoT enables real-time asset monitoring and logistics visibility (Anitha & Rai, 2025; Devarajan, 2025). Blockchain contributes transparency and traceability across supply chain networks (Qiao, 2025; Sislian & Jaegler, 2022). Cloud computing supports scalable ERP infrastructure (Anuruddha Chathuranga de Alwis, 2025), while Big Data Analytics transforms operational data into actionable insights (Cayir Ervural, 2025; Li & Xu, 2025). Together, these technologies transform ERP systems into intelligent digital hubs for adaptive, resilient, and data-driven supply chain ecosystems, enabling greater visibility, coordination, and operational efficiency (Amellal, 2024; Balon, 2022; Pant, 2025).

4. Review of Findings

4.1. Theme 1: ERP Implementation and Supply Chain Integration

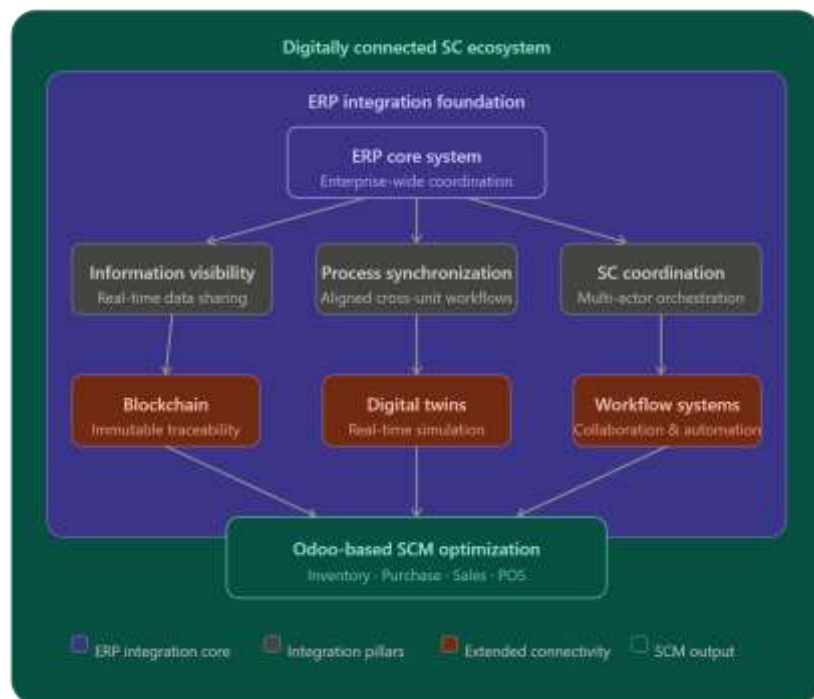
ERP systems have become foundational infrastructure for integrating supply chain activities, connecting procurement, production, inventory management, logistics, finance, and customer processes into a unified platform that enables real-time information exchange, process synchronization, and cross-functional collaboration. The reviewed studies provide insights into how ERP platforms contribute to SC integration, visibility, coordination, and alignment applicable to Odoo's open-source architecture (Ahmad, 2021; Canon, 2025; Lukyanova, 2022).

No	Author(s) & Year	Industry / Context	Research Focus	ERP-SCM Integration Aspect	Key Findings
1	Ahmad et al. (2021)	Jordanian Manufacturing	ERP implementation & SC integration	Supplier, customer & process integration	ERP implementation positively affected integration with suppliers, customers, and internal processes.
2	Canon et al. (2025)	Logistics & SC Operations	ERP-enabled logistics transformation	Logistics coordination & decision integration	ERP-supported digital transformation significantly improved logistics performance and organizational growth.
3	Lukyanova et al. (2022)	Humanitarian & Private SC	Types of ERP systems & SC impacts	Enterprise-wide SC integration	ERP systems generated similar positive impacts on SC performance across sectors.
4	Sislian & Jaegler (2022)	Sustainable Supply Chains	ERP-Blockchain integration	Cross-organizational sustainability integration	ERP and blockchain integration improved sustainable SC performance and collaboration.
5	Sihlali & Telukdarie (2022)	Petroleum Industry	Digital planning & logistics systems	Data transparency & process integration	Digital integration enhanced SC visibility and reduced process discontinuities.
6	Mitropoulos et al. (2022)	Supply Chain Networks	Workflow management IS	Web-based SC integration	Integrated IS improved coordination and business management effectiveness.
7	Soykan et al. (2025)	Semiconductor Industry	SC digital twin architecture	ERP-centered SC ecosystem integration	ERP served as a core platform connecting planning, analytics, suppliers & customers through digital twins.
8	Sai Haree Ram et al. (2024)	Global IT Supply Chains	Blockchain-enabled shipment mgmt	ERP integration with decentralized systems	Blockchain-based integration improved transparency, traceability, and SC resilience.
9	Luszczak (2023)	MS Dynamics 365 SCM	ERP-supported business processes	End-to-end SCM integration	ERP facilitated integration of procurement, inventory, logistics, and finance.
10	Jat et al. (2025)	Agribusiness Industry	ERP implementation challenges & benefits	Information & operations integration	ERP improved information accuracy and operational coordination despite challenges.

11	Venkatadri et al. (2021)	Internal Supply Chains	Demand planning & capacity mgmt	Planning integration across SC nodes	Integrated planning improved coordination between production, warehousing, and transportation.
12	Bai et al. (2025)	Energy Supply Chains	SC relationship management	Inter-firm collaboration & info exchange	Effective relationship management strengthened SC stability under uncertainty.

Table Narrative

The reviewed studies consistently demonstrate that ERP systems serve as the backbone of supply chain integration through information visibility, process synchronization, and enterprise-wide coordination (Mitropoulos, 2022; Sihlali & Telukdarie, 2022; Sislian & Jaegler, 2022). Integration with blockchain, digital twins, and workflow management systems further expands connectivity and collaboration capabilities(Sai Haree Ram, 2024; Soykan, 2025), establishing ERP as a robust foundation for digitally connected SC ecosystems that supports Odoo-based SCM optimization(Bai, 2025; Jat, 2025; Luszczak, 2023; Venkatadri, 2021).



4.2. Theme 2: Operational Efficiency and Performance Optimization

ERP systems contribute substantially to operational optimization by integrating business processes, automating routine activities, improving resource utilization, and supporting data-driven decision-making. AI, predictive analytics, and warehouse automation have further enhanced these capabilities (Antomarioni, 2021; Palanivel, 2025; Sarferaz, 2025).

No	Author(s) & Year	Industry / Context	Research Focus	Operational Efficiency Focus	Key Findings
1	Sarferaz (2025)	Enterprise ERP Systems	Agentic AI in ERP	Intelligent process automation	Agentic AI enhanced ERP adaptability, automation, and process efficiency.
2	Palanivel et al. (2025)	Inventory & SCM	LIFO–FIFO & predictive analytics	Inventory optimization & cost reduction	Predictive analytics improved inventory efficiency and operational agility.
3	Antomarioni et al. (2021)	Manufacturing Warehouse	Data-driven warehouse allocation	Warehouse efficiency & picking optimization	Data analytics reduced picking time and improved warehouse performance.
4	Dulloo et al. (2025)	Industrial Supply Chains	Reinforcement learning & ERP analytics	Predictive operational intelligence	AI-driven ERP analytics improved risk management and decision-making accuracy.
5	Rathor (2025)	Enterprise Business Ops	AI-enabled ERP automation	Business process automation	Hybrid AI frameworks improved operational intelligence and process efficiency.
6	Solano & Cruz (2024)	Enterprise IS	Integrated analytics in enterprise systems	Strategic & operational decision support	Advanced analytics enhanced ERP-driven decision-making capabilities.
7	Li & Xu (2025)	AI-Based IS	Big data analytics & multimodal data fusion	Data-driven operational optimization	AI and big data improved analytical performance and organizational effectiveness.
8	Kattunga et al. (2025)	Warehouse Management	SAP EWM & S/4HANA integration	Warehouse productivity optimization	Real-time inventory tracking and automation improved throughput and accuracy.
9	Mucherla (2025)	ERP-Based SC Operations	Explainable AI for vendor delay prediction	Predictive SC performance	XAI enhanced trust, transparency, and operational decision quality.

10	Muthusamy & Udara (2025)	Human Capital Mgmt in ERP	ERP module utilization effectiveness	Workforce management efficiency	Effective ERP module utilization improved workforce productivity and performance.
11	Cayir Ervural (2025)	Sustainable Supply Chains	Big Data-driven supplier selection	Decision-making efficiency	ERP-integrated big data improved supplier evaluation accuracy and responsiveness.
12	Martínez-Falcó et al. (2024)	Operations Management	Technology-enabled operational mgmt	Productivity & process optimization	Digital technologies enhanced operational efficiency and competitiveness.

Table Narrative

ERP systems enhance operational efficiency through process automation, predictive analytics, intelligent decision support, and resource optimization (Dulloo, 2025; Rathor, 2025; Solano & Cruz, 2024). AI-enhanced ERP environments strengthen operational intelligence, inventory management, and supply chain responsiveness (Li & Xu, 2025; Mucherla, 2025), while warehouse automation improves productivity and accuracy (Kattunga, 2025; Muthusamy & Udara, 2025). These findings confirm ERP systems as strategic enablers of operational excellence (Cayir Ervural, 2025; Martinez-Falco, 2024).

4.3. Theme 3: Digital Transformation and Industry 4.0 in ERP-SCM Ecosystems

Digital transformation and Industry 4.0 technologies have reshaped ERP-supported supply chains into intelligent, connected, and data-driven ecosystems, with ERP systems serving as strategic platforms for digital innovation (Han, 2024; Taifa & Nzowa, 2025; Zdravkovic, 2022).

No	Author(s) & Year	Industry / Context	Technology Focus	Digital Transformation Focus	Key Findings
1	Han et al. (2024)	Industry 4.0 Manufacturing	Digital SC Technologies	SC digitalization & connectivity	Industry 4.0 technologies accelerated SC digitalization and data-driven integration.
2	Zdravković et al. (2022)	Manufacturing Enterprises	Artificial Intelligence Services	AI-enabled enterprise ecosystems	AI services improved production planning, logistics, and organizational intelligence.
3	Taifa & Nzowa (2025)	Pharmaceutical Manufacturing	SCM 4.0 Technologies	Digital transformation &	Industry 4.0 technologies strengthened agility,

				operational resilience	resilience, and predictive capabilities.
4	Qiao et al. (2025)	Fashion SC SMEs	Blockchain-Based Collaboration	Decentralized digital ecosystems	Blockchain enhanced transparency, trust, and collaborative governance mechanisms.
5	Anitha & Rai (2025)	IoT-Based SC Networks	Blockchain and IoT Integration	Smart SC connectivity	IoT and blockchain improved communication efficiency and SC transparency.
6	Pant et al. (2025)	Sustainable IS	Explainable AI (XAI) & NLP	Intelligent monitoring & info validation	AI-driven monitoring improved reliability and transparency of SC information.
7	Abidin & Erdem (2025)	Intelligent Analytics Systems	Deep Learning & Feature Engineering	AI-driven business intelligence	Deep learning enhanced prediction accuracy and analytical intelligence.
8	A.C. de Alwis et al. (2025)	Legacy Enterprise Systems	Cloud Computing & Microservices	Enterprise modernization & scalability	Cloud-based remodularization improved flexibility and adaptability of enterprise systems.
9	Moica et al. (2025)	Automotive Logistics	Generative Artificial Intelligence	AI-enabled warehouse digitalization	Generative AI enhanced warehouse efficiency and sustainable logistics operations.
10	Devarajan et al. (2025)	Smart Manufacturing Systems	IoT & Hybrid Optimization Algorithms	Intelligent production systems	IoT-enabled optimization improved production scheduling and operational control.
11	Amellal et al. (2024)	Automotive Supply Chains	Reinforcement Learning	Predictive & intelligent SCM	AI-driven predictive optimization improved profitability and customer satisfaction.
12	Balon et al. (2022)	Virtual Enterprise Production	Blockchain-Based Scheduling	Decentralized operational management	Blockchain improved planning efficiency and production coordination.

Table Narrative

Industry 4.0 technologies substantially expand ERP capabilities through intelligent automation, predictive analytics, decentralized collaboration, and real-time connectivity (Anitha & Rai, 2025; Pant, 2025; Qiao, 2025). AI, blockchain, IoT, and cloud computing emerged as dominant drivers of digital transformation (Abidin & Erdem, 2025; Anuruddha Chathuranga de Alwis, 2025; Moica, 2025), collectively positioning ERP



systems as intelligent strategic platforms for supply chain ecosystems (Amellal, 2024; Balon, 2022; Devarajan, 2025).

4.4. Theme 4: Challenges, Critical Success Factors, and Future Directions

Despite significant ERP benefits, organizations encounter implementation challenges related to organizational readiness, technological complexity, cybersecurity, user acceptance, and change management. Successful ERP adoption depends on leadership commitment, employee capability development, strategic alignment, and effective governance (Qureshi, 2022; Yan & Ramayah, 2023).

No	Author(s) & Year	Industry / Context	Research Focus	Key Challenges	Critical Success Factors	Future Research Directions
1	Qureshi (2022)	Sustainable SCM	ERP implementation success factors	Organizational resistance, process complexity, change management difficulties	Top management support, BPR, employee training, stakeholder commitment	Sustainability-oriented ERP frameworks and maturity assessment
2	Yan & Ramayah (2023)	Enterprise SCM	ERP benefits evaluation & measurement	Difficulty measuring ERP-enabled SCM benefits and strategic value	Comprehensive performance evaluation and benefit realization frameworks	Dynamic ERP performance measurement models
3	Ziemba & Gago (2022)	Enterprise SCM Systems	ERP system functionality assessment	ERP selection complexity and functionality mismatch	System evaluation accuracy, SCM requirement alignment, decision-support	Comparative ERP platform evaluation and SCM capability benchmarking
4	Yao & Azma (2022)	Medium-Sized Enterprises	Cloud ERP implementation	Cybersecurity risks, privacy concerns, user trust issues	Organizational digital readiness, cybersecurity governance, user acceptance	Cloud ERP security frameworks and trust-based adoption models
5	Nair et al. (2022)	ICT-Enabled Supply Chains	ICT adoption & SCM performance	Technology adoption barriers and organizational adaptation challenges	Digital capability development, continuous learning, organizational flexibility	Human-centered ERP adoption and digital transformation research



Table Narrative

ERP implementation success depends on both technological and organizational factors. Organizational readiness, leadership commitment, employee training, cybersecurity governance, and strategic alignment consistently represent the most influential critical success factors (Yao & Azma, 2022; Ziemba & Gago, 2022). Implementation barriers include resistance to change, inadequate digital competencies, security concerns, and challenges in evaluating ERP benefits (Nair, 2022). Future research directions encompass sustainability-oriented ERP frameworks, cloud ERP security, benchmarking, and human-centered digital transformation.

5. Discussion

5.1. ERP-SCM Integration and Operational Excellence

ERP systems function as the primary digital infrastructure enabling supply chain integration through information visibility, process synchronization, and organizational coordination. Across reviewed studies, ERP implementation consistently improved collaboration among suppliers, customers, logistics providers, and internal units, confirming that ERP establishes unified information environments facilitating real-time communication and coordinated decision-making (Ahmad, 2021; Canon, 2025; Lukyanova, 2022). ERP-enabled integration extends beyond internal coordination toward ecosystem-wide connectivity through blockchain, digital twins, and intelligent logistics systems (Sai Haree Ram, 2024; Sislian & Jaegler, 2022; Soykan, 2025). These findings suggest that Odoo ERP, whose modular architecture integrates procurement, inventory, sales, finance, manufacturing, and logistics within a single platform, is well positioned to support end-to-end SC visibility; however, as this review is based on the broader ERP literature rather than on empirical studies of Odoo implementations specifically, this proposition should be read as an inference rather than a confirmed finding (Jat, 2025; Luszczak, 2023).

Regarding operational excellence, ERP systems contribute substantially through process automation, predictive analytics, and resource optimization. ERP-supported automation improves inventory management, warehouse efficiency, and workforce productivity (Antomarioni, 2021; Kattunga, 2025), while analytics strengthen forecasting accuracy, supplier evaluation, and operational responsiveness (Cayir Ervural, 2025; Mucherla, 2025). Unlike monolithic proprietary ERP suites, Odoo's modular architecture allows organizations to activate only the SCM-relevant modules they require, its open-source licensing removes much of the cost barrier that often constrains automation initiatives in resource-limited organizations, and its scalable design allows functionality to be added incrementally as operations grow. These characteristics imply that Odoo's contribution to operational excellence follows a different adoption trajectory than that



typically reported for large-scale proprietary ERP deployments, particularly for smaller and growing organizations. The increasing convergence of ERP with AI technologies—improving decision quality, predictive capabilities, and operational agility (Dulloo, 2025; Li & Xu, 2025)—further implies that Odoo's modular structure enables incremental automation while maintaining operational flexibility.

5.2. Digital Transformation, Industry 4.0 & Implementation Challenges

Industry 4.0 technologies have fundamentally reshaped ERP-supported supply chain ecosystems. AI, IoT, Blockchain, Cloud Computing, Big Data Analytics, and Digital Twins enhance ERP capabilities by enabling intelligent, connected, and data-driven operations (Han, 2024; Taifa & Nzowa, 2025), extending ERP functionality toward predictive and adaptive supply chain management. Real-time monitoring, predictive maintenance, intelligent scheduling, and automated optimization improve organizational responses to market volatility and operational disruptions (Amellal, 2024; Devarajan, 2025). Organizations combining Odoo with AI, IoT, analytics, and cloud infrastructure are therefore expected to achieve superior agility, visibility, and performance (Anuruddha Chathuranga de Alwis, 2025; Moica, 2025).

Despite significant benefits, technological capability alone does not guarantee ERP success (Qureshi, 2022). Top management support, organizational readiness, employee training, stakeholder engagement, change management, and business process alignment consistently emerged as the most critical success factors. Implementation barriers include resistance to change, integration complexities, cybersecurity concerns, and data migration challenges (Nair, 2022; Yao & Azma, 2022). Organizational capabilities and leadership commitment frequently exert greater influence on ERP success than technological sophistication (Yan & Ramayah, 2023; Ziemba & Gago, 2022), requiring investment in organizational learning, digital capability development, and change management programs alongside technology acquisition.

5.3. Future Research Agenda

Future research should: (1) investigate how Odoo's open-source architecture influences SC integration and performance compared with proprietary ERP (Ziemba & Gago, 2022); (2) examine Odoo integration with AI, machine learning, blockchain, digital twins, and IoT-enabled SC ecosystems (Nair, 2022; Yao & Azma, 2022); (3) explore Odoo ERP support for circular economy, sustainable SC practices, and environmental performance measurement (Sislian & Jaegler, 2022); (4) advance cybersecurity, digital governance, and data quality management within cloud-based ERP ecosystems (Yao & Azma, 2022); and (5) conduct comparative open-source versus proprietary ERP studies examining effectiveness, cost efficiency, scalability, and organizational value creation (Yan & Ramayah, 2023).



5.4. Managerial Implications for Open-Source ERP Adopters

Adoption Strategy & Integration Roadmap. For organizations considering open-source ERP such as Odoo, implementation is best approached as a strategic business transformation initiative—beginning with executive commitment, readiness assessment, and goal alignment (Qureshi, 2022; Yan & Ramayah, 2023). A phased roadmap prioritizing integration of procurement, inventory, sales, finance, and logistics functions reduces implementation risks while progressively strengthening organizational capabilities and user acceptance (Jat, 2025; Luszczak, 2023). For a growing F&B enterprise such as Shegia Grup, used here as an illustrative case rather than an object of empirical evaluation, this would translate into sequencing modules around its most SCM-critical functions first.

Operational Improvement & Digital Readiness. ERP-adopting organizations—particularly small and medium enterprises with limited IT infrastructure—should prioritize integration of purchasing, warehouse management, inventory control, and supplier modules to enhance SC visibility and reduce inefficiencies (Ahmad, 2021; Venkatadri, 2021). Leveraging Odoo's automation capabilities can streamline repetitive processes, improve reporting accuracy, and support real-time decision-making (Antomarioni, 2021; Kattunga, 2025; Sarferaz, 2025). Sustained investment in employee training, digital skills development, data governance frameworks, and change management is essential for maximizing ERP utilization and long-term digital transformation outcomes (Nair, 2022; Yao & Azma, 2022). These recommendations are intended as general guidance for open-source ERP adopters; achieving these benefits requires combining technological investment with organizational capability development, leadership commitment, and continuous improvement mechanisms, and their applicability to a specific organization such as Shegia Grup would need to be confirmed through future empirical study.

6. Conclusion

This Systematic Literature Review synthesized fragmented knowledge on Odoo-based ERP systems in Supply Chain Management (SCM) optimization, analyzing 41 Scopus-indexed studies (2021–2025) through a PRISMA-guided process across four analytical themes: ERP Implementation and SC Integration; Operational Efficiency and Performance Optimization; Digital Transformation and Industry 4.0 in ERP–SCM Ecosystems; and Challenges, Critical Success Factors, and Future Directions (Qureshi, 2022; Yan & Ramayah, 2023). In response to RQ1 and RQ2, the synthesis confirms that ERP systems are critical enablers of supply chain integration and operational efficiency, facilitating information sharing, process synchronization, real-time visibility, and collaborative decision-making, while automation and predictive analytics further enhance inventory management, logistics coordination, and organizational performance



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(Ahmad, 2021; Canon, 2025; Lukyanova, 2022; Martinez-Falco, 2024; Palanivel, 2025; Sarferaz, 2025). Addressing RQ3, Industry 4.0 technologies—AI, IoT, Blockchain, Cloud Computing, Big Data Analytics, and Digital Twins—were found to transform ERP into intelligent platforms supporting adaptive, data-driven supply chain ecosystems (Han, 2024; Qiao, 2025; Taifa & Nzowa, 2025).

In relation to RQ4, the review confirms that ERP success depends not only on technology but also on organizational readiness, leadership commitment, employee competencies, change management, and strategic alignment (Nair, 2022; Yao & Azma, 2022; Ziemba & Gago, 2022); research specifically addressing Odoo ERP remains limited, representing a substantial opportunity for future investigation and, together with RQ5, motivating the future research agenda outlined in Section 5.3. The principal scientific contribution of this review lies in consolidating a literature base drawn largely from general-purpose and proprietary ERP–SCM research into a synthesis explicitly framed around Odoo's characteristics as an open-source, modular ERP. This reframing suggests that the mechanisms through which Odoo may support SCM optimization—modularity, cost-accessibility, and scalability—differ from those reported for large-scale proprietary systems, and therefore warrant dedicated empirical investigation rather than direct extrapolation from the broader ERP literature.

In response to RQ6, the review offers managerial implications for organizations considering open-source ERP adoption for supply chain integration, inventory optimization, procurement management, and long-term digital transformation, using Shegia Grup as an illustrative case for organizations of comparable scale and sector rather than as the object of empirical evaluation; these implications remain literature-derived propositions that would need to be validated through future implementation-based research.

This review is subject to limitations inherent to its SLR design: it is confined to Scopus-indexed, English-language publications from 2021–2025, and because very few of the reviewed studies examine Odoo specifically, several conclusions regarding Odoo's SCM contribution are extrapolated from research on ERP systems more broadly rather than drawn from Odoo-specific evidence. Future research should therefore prioritize Odoo-specific empirical studies, including case-based or implementation research at organizations such as Shegia Grup, AI-enabled ERP ecosystems, cloud-based integration architectures, and sustainable SCM practices (Sihlali & Telukdarie, 2022; Sislian & Jaegler, 2022), alongside comparative studies examining the effectiveness of open-source versus proprietary ERP.



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