

Theorizing Blockchain Technology for Supply Chain Management Practices: A Systematic Literature Review

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Abstract

Background: Blockchain adoption in supply chain management has attracted growing academic and practitioner attention; yet the impact varies significantly by implementation context, and the knowledge of the conditions driving this variation remain limited. **Methods:** This study conducts a systematic review of 112 papers to systematically synthesize how blockchain integration affects supply chain management practices (SCMPs), including upstream practices (e.g., supplier partnerships), downstream practices (e.g., customer relationships), and practices spanning both sides of the supply chain (e.g., information sharing and information quality). **Results:** The review finds that the benefit of blockchain adoption depends on a firm's supply chain position, cost structures, and market conditions. Two theoretical perspectives are used to interpret these findings: the resource-based view, which viewed blockchain as a capability for integrating processes and transactions across organizations, and the practice-based view, which viewed blockchain as an imitable activity requiring context-specific deployment conditions. Fourteen propositions are developed to guide future research. **Conclusions:** This review provides practitioner guidance for evaluating when and how blockchain is likely to generate values across different SCMPs. Also, it provides researchers with a theory-grounding agenda for testing the proposed propositions empirically.

Keywords: blockchain; supply chain management practices; practice-based view; resource-based view

1. Introduction

Digitalization of supply chains is increasingly important for industries such as pharmaceuticals, agriculture, and chemicals, as it supports improved information sharing, information quality [1] and transparency [2]. Blockchain technology consists of distributed ledgers that store and share transactions in a decentralized database [3,4].

Although blockchain has gained attention in recent years, as a potential solution for supply chain challenges, particularly in sectors such as food traceability and agriculture [5–7]. The impact of blockchain on supply chain activities varies significantly based on implementation approach and context. While existing studies have addressed the roles of blockchain in meeting supply chain objectives such as cost, speed, quality, sustainability, and flexibility [8], a critical gap remains. To the best of our knowledge, existing review studies have not comprehensively synthesized blockchain's impact across



Academic Editor: Robert Handfield

Received: 14 June 2026

Revised: 21 July 2026

Accepted: 3 August 2026

Published: 6 August 2026

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multiple supply chain management practices (SCMPs) simultaneously, leaving practitioners without a comparative view of where blockchain adoption is most and least supported by evidence, which lacks details on which practices can improve supply chain performance. Also, decision-making on the adoption of blockchain for supply chain management is still limited [9]. Following the gap found by Okorie et al. [9], this study guides inter-organizational networks when considering blockchain adoption toward certain SCMPs.

We address the gap found in the literature using a systematic literature review approach. To do so, we examined the blockchain integration across upstream activities (supplier partnerships), downstream activities (customer relationships) and cross functional practices (information sharing, quality management) and identify relevant research on blockchain integration with SCMPs in information systems and supply chain management literature. Following Orlikowski and Iacono [10], we theorize blockchain as an IT artifact from the resource-based view and practice-based view perspective. Our research questions are:

RQ1: How effective is blockchain technology in addressing issues related to different supply chain management practices?

RQ2: Under which conditions do organizations or inter-organizational networks adopt blockchain to support certain supply chain management practices?

RQ3: How can the resource-based view (RBV) and practice-based view (PBV) be used to explain blockchain adoption across SCMPs?

This systematic review of 112 peer-reviewed studies identifies which practices benefit from blockchain adoption, the enabling conditions, and the theoretical mechanisms explaining the impact. The next section discusses the theoretical background of the blockchain and SCMPs. The methodological approach is explained. We then present a theoretical framework based on the literature results and provide practical, research, and theoretical implications. The final section discusses the findings, provides guidance on the conditions for blockchain adoption, and recommendations for future research.

2. Theoretical Background

2.1. Blockchain and Inter-Organizational Systems

Orlikowski and Iacono [10] established that IT artifacts emerge from developing social and economic practices. Blockchain represents an emerging technology that is influencing inter-organizational practices across domains and industries. Technically, blockchain is a cryptographic decentralized distributed ledger that stores and processes information through continuous blocks transformed from digital events. It secures its contents from modifications using encryption mechanisms [11,12].

Inter-organizational systems require two or more organizations to collaborate effectively [13], with transparency and trust being crucial to successful interactions [14]. Li and Lin [1] refer to inter-organizational relationships as the degree of trust, commitment, and collaboration between business partners. Deploying blockchain in inter-organizational networks shifts from trust-based to verification-based interaction, reducing risk through transparency and immutability [12]. However, blockchain requires intentional inter-organizational collaboration and integration with existing enterprise systems to create value for business partners [15,16].

For example, Walmart and IBM deployed a blockchain-based collaboration platform to strengthen food products security through supply chain traceability [17]. Such implementations demonstrate that organizations can obtain benefits from blockchain through effective inter-organizational relationships [8].

2.2. Supply Chain Management Practices

SCMPs are operational functions and activities that can capture the degree of imitability and determine the supply chain's effectiveness and efficiency [13,18]. The scope of SCMPs distinguished three dimensional category upstream practices involving supplier activities (e.g., procurement, supplier partnerships), downstream practices involving customer relationships and practices like information sharing and information quality which are related to both supply chain sides [19].

Literature reviews identify a variety of SCMPs such as just-in-time production, strategic planning, delivery practices [20–22], agreed vision and goals, and risk and reward sharing [18]. Our research synthesizes this research to establish eight supply chain practices: joint product development, purchasing alliances, vendor-managed inventory, strategic supplier partnership, customer relationship, information sharing, information quality, and postponement [13,19,21,23].

We note that Carter et al. [13] identified two additional practices: product return processing and logistic process outsourcing; however, these practices are not expected to affect the efficiency of supply chain activities [21]. The supplier development practice of Carter et al. [13] overlaps with the strategic supplier partnership [23]; thus, the latter captures this dimension. Table 1 briefly explains these practices with definitions along with literature sources.

Table 1. SCMP definitions.

Dimensions of SCMPs	Definition	Source
Joint Product Development	It refers to the participation of suppliers in the new product development process.	[13,24,25]
Purchasing Alliances	The relationships between the organization and its partners are meaningful for supply-related decisions, including the make-or-buy strategy.	[13,25]
Vendor-managed Inventory	It refers to the inventory replenishment decisions on production, distribution, and monitoring of products across warehouses and regions.	[13,21,26,27]
Strategic Supplier Partnership	It refers to the strategic relationship between organizations and their suppliers to leverage the operational capabilities and achieve significant benefits.	[18,19,23]
Customer Relationship	It refers to long-term relationships with customers and ensuring sustainable satisfaction.	[18,19,23]
Information Sharing	The degree level of information shared with one partner in the supply chain.	[1,18–20,23]
Information Quality	It refers to the accuracy, adequacy, and trustworthiness of information in the supply chain.	[1,18,19,23]
Postponement	The technique of forwarding operations or tasks (production, procurement, and distributing) in the supply chain.	[18–20,23]

2.3. Prior Literature Reviews on Blockchain and Supply Chain Research

Several review studies have examined blockchain applications in supply chain contexts. Early conceptual work by Cole et al. [28] provided a viewpoint analysis of blockchain implications for operation and supply chain management. Subsequent systematic reviews, such as Queiroz et al. [29] found that the field was still in its infancy with limited understanding of blockchain's disruptive potential. More specialized reviews have

emerged in the past few years. Industry-specific reviews have examined blockchain applications in automotive [30], oil and gas [31], agriculture [32], and healthcare supply chains [33]. Technology-focused reviews have explored blockchain alongside IoT and cyber risk management [34,35]. Sustainability-oriented reviews have explored traceability for sustainability [36].

Despite this growing body of review literature, a critical gap remains. These reviews treat “supply chain management” as a unified concept rather than examining how blockchain affects specific, identifiable practices. None specifically synthesize blockchain’s impact on supply chain management practices (SCMPs) such as vendor-managed inventory, strategic supplier partnerships, or customer relationship management as distinct units of analysis. This represents a significant gap because supply chain management comprises distinct practices—each with different information requirements, inter-organizational dynamics, and performance implications. Understanding blockchain’s differential impact at this granular level of SCMPs is crucial for both theoretical development and practical implementation guidance, enabling more precise implementation guidance compared to treating SCM as a monolith.

3. Methodology and Research Design

3.1. Research Design

A systematic literature review is a widely used methodology that provides high transparency in the search processes and comprehensively evaluates previous scholarly research on a topic. This review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines for systematic reviews to ensure transparency and reproducibility in the literature selection and reporting process. As this study represents a systematic review of published literature, no formal protocol registration number was assigned. The completed checklist is provided in the Supplementary Materials.

The objective of this systematic literature review is to explore the integration of blockchain across SCMPs. To do so, we applied the five-step processes for systematic literature review that was proposed by vom Brocke et al. [37] as recommendations when conducting literature review. During the search process, we ensured that all studies must involve the application of emerging blockchain technology in the supply chain contexts, whether integrating with inter-organizational systems, enterprise resource planning, material requisition planning, or e-commerce systems. Figure 1 indicates the five-step process that was first employed for this research.

3.2. Review Process

The systematic literature review included peer-reviewed publications on “blockchain” and “supply chain,” that were published between 2017 and the beginning of 2023; no peer-review studies were found before 2017. Details on the databases used in the search are shown in Table 2. Search terms and the number of studies found are shown in Table A1 (see Appendix A).

An initial broad search using the terms ‘blockchain’ and ‘supply chain’ returned 799 studies after duplicate removal. A single reviewer screened all studies and papers which were included only if they explicitly discussed the implementation, adoption, or impact of blockchain in relation to one or more of the eight identified SCMPs (Table 1); papers addressing blockchain and supply chains only in general terms, without reference to a specific management practice, were excluded. Inclusion/exclusion decisions, particularly borderline cases, were reviewed by a second reviewer in weekly meetings. Agreement/disagreements were resolved through discussion.

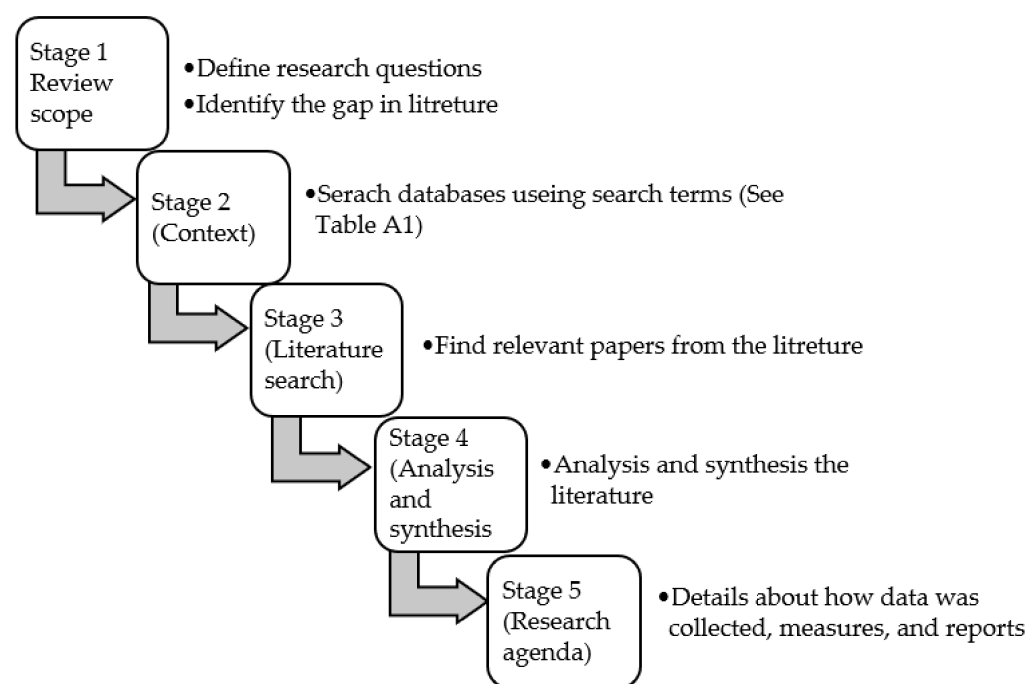


Figure 1. Systematic literature search processes [37].

Table 2. Applied filter used for each database during search process.

Database	Applied Filter
AIS e-Library	Peer-reviewed only, articles from 2017 to 2023 search in all fields (abstract, title, subject, etc.)
Business Source Premier	Peer-reviewed, journal articles only from 2017 to 2023, search in the whole text
ScienceDirect	Research article, search keywords in title, abstract or keywords
ProQuest Central	Peer review, scholarly journal, English only

Figure 2 shows the PRISMA 2020 flow diagram for new systematic reviews which include searches of databases. In total, 799 suitable papers were examined before exclusion. For a study to be included in the review, it must have examined blockchain implementation in supply chain contexts and have addressed one or more of the eight identified SCMPs (Table 1). It needed to be a complete research paper written in English and published in a peer-reviewed journal. Studies that were not related to the main objectives of this review were removed, such as FinTech and Bitcoin.

The total studies included in this review are 112. These studies appeared in 46 journals: 34 within information systems or related fields (84 studies), 6 in supply chain management and logistics (16 studies), and 6 in domain-specific fields, such as agriculture, food science, health, and engineering (12 studies). Table A2 (Appendix A) details the number of studies found for each journal.

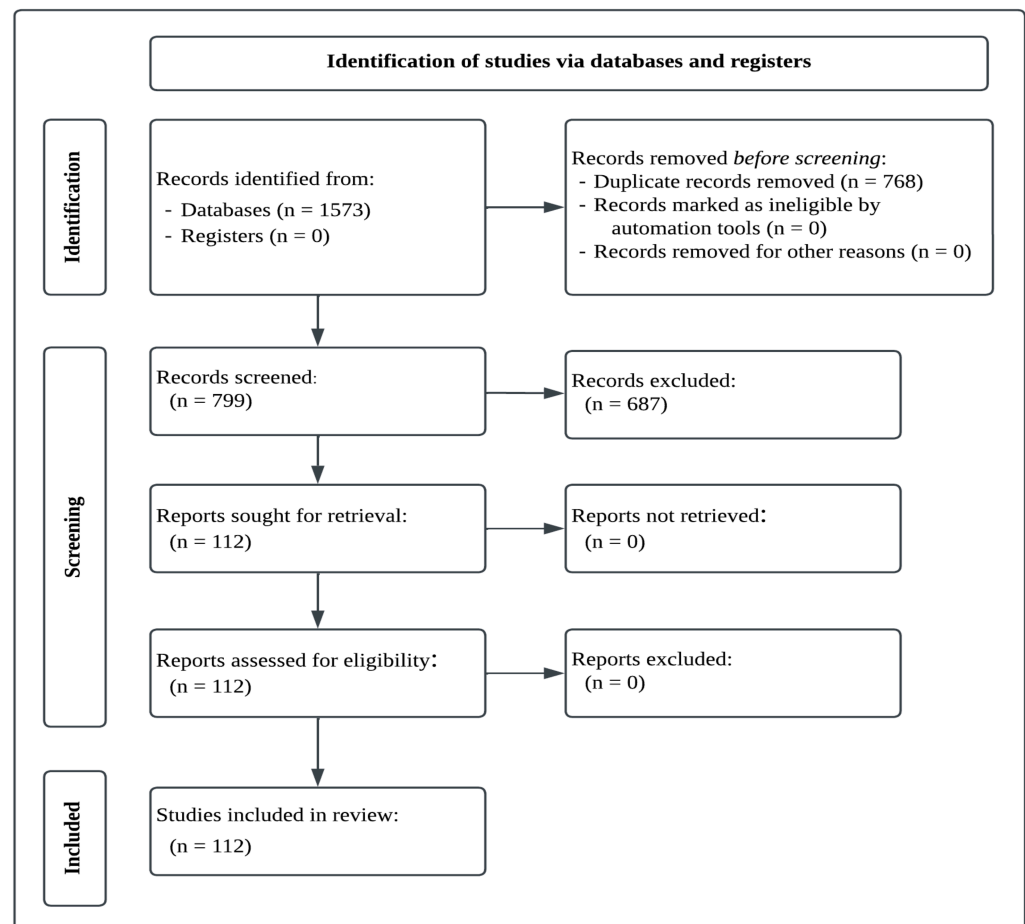


Figure 2. PRISMA flow diagram of selected review articles.

We summarized the key findings, variables of interest, theory, and methodology for each study and classified them following Jadhav and Deshmukh [33], using these dimensions:

- Conceptual studies: review papers evaluated the effectiveness of blockchain in the supply chain;
- Implementation studies: deployed and evaluated blockchain technology in the supply chain;
- Model or prototype studies: provided a prototype or model of blockchain-based technology;
- Combined studies: provided both a prototype or model of blockchain creation and practically deployed the solution.

We then analyzed the scope of the paper with respect to the supply chain practices examined and the purpose of the blockchain implementation, synthesizing which practice/s drove blockchain implementation, and under which conditions. This allowed us to determine which practice/s are supported when implementing blockchain technology, with 44 studies examining more than one practice. Twenty-four studies discussed the conditions of blockchain adoption for supply chain management. Figure 3 demonstrates the distribution of the collected 112 papers in terms of industry focus. Tables A3–A9 (Appendix B) summarize the studies found for each SCMP and their classification.

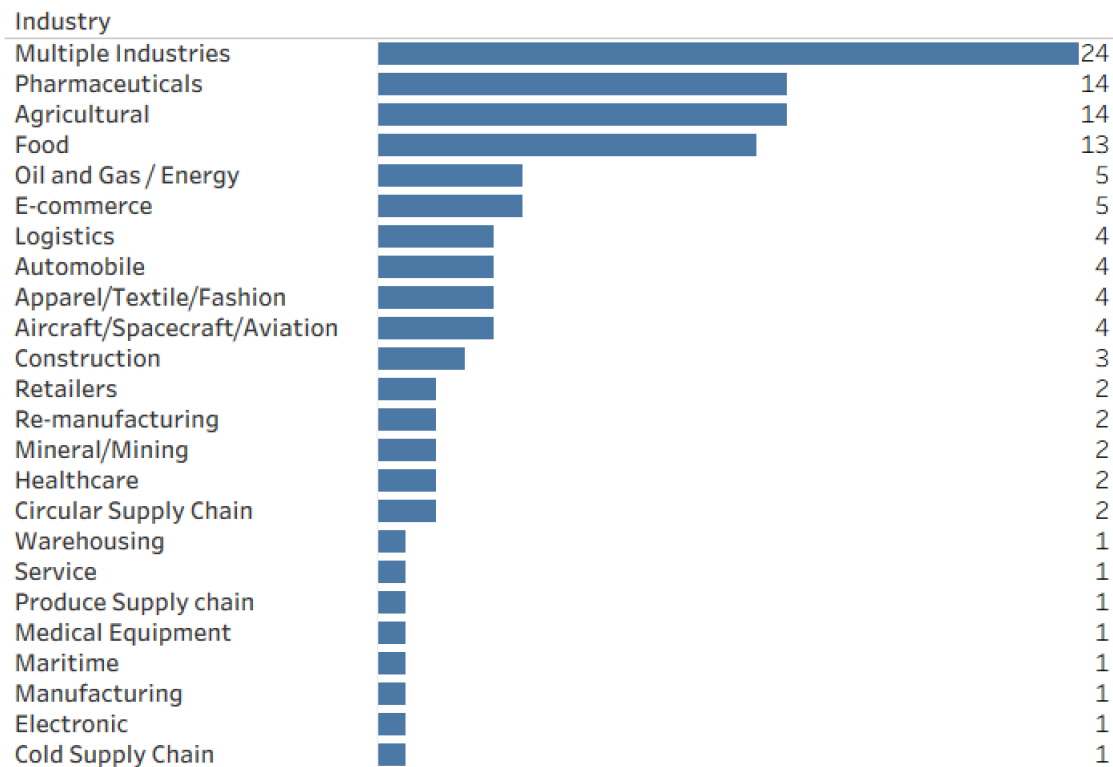


Figure 3. Distribution of collected papers in terms of industry focus.

4. Results of the Systematic Literature Review

This section summarizes the results of the systematic literature review. We specified each practice separately in Table 1 to answer the first research question: Which supply chain management practices have blockchain been adopted for and supported? Then we discuss the conditions of the adoption to answer the second research question: Under which conditions do organizations or inter-organizational networks adopt blockchain to support certain supply chain management practices? Not all papers discussed the conditions of adopting blockchain; thus, our summaries are based on the subset of papers that address this issue.

4.1. The Association of Blockchain Technology to the SCMPs

From a resource-based view, blockchain represents a spanning capability that integrates both internal resources (Inside-out) with external relationships (outside-in) across supply chain contexts [38]. However, blockchain's specific mechanisms and effectiveness vary significantly across different supply chain management practices: as a trust-building mechanism for relationship-intensive practices (strategic partnerships, customer relations), as a process automation tool for transaction-intensive practices (purchasing alliances, vendor inventory), and as an information verification system for data-intensive practices (information quality, information sharing). While no formal certainty-of-evidence framework (e.g., GRADE) was applied, given the heterogeneity of study designs synthesized in this qualitative review, each study was classified by methodological type following Jadhav and Deshmukh [33], conceptual, implementation, model/prototype, or combined, providing a basic indicator of the type and strength of evidence underlying each practice-level finding. All included studies met peer-review and full-paper inclusion criteria, providing a baseline quality filter. Findings are therefore presented as patterns observed across heterogeneous evidence rather than as causally certain effects, with the strength of evidence varying by practice (see Tables A3–A9 counts by classification).

4.1.1. Joint Product Development

Joint product development involves coordination and collaboration between firms and their suppliers to innovate a new product or enhance existing products within the supply chain [13,24,25,39]. Three articles examined the use of blockchain for joint product development practice. Cole et al. [28] found that blockchain enhances efficiency in the supply chain when developing new insurance products, such as smart contracts, that can manage automatic payments. Similarly, Benzidia et al. [40] found that the internal integration of blockchain is significant and has a positive relationship with the innovation processes in the Industry 4.0 era. Finally, Xu et al. [41] found that manufacturers can increase profit when using blockchain to remanufacture products and cooperate with online channels and can contribute to reducing carbon emissions. The results of these three studies suggest that blockchain enables joint product development by enhancing efficiency in the supply chain [28] and creating opportunities for firms to improve operational processes [40].

4.1.2. Purchasing Alliances

Purchasing alliances involve organizations developing trustworthy supplier relationships to manage procurement and supply-related processes, where information integrity is critical to preventing fraud and misallocation [13,25]. Our literature review identified six studies investigating the purchasing alliance practices, revealing consistent benefits for secure procurement processes.

Blockchain strengthens purchasing alliance practices through multiple mechanisms. Yadav and Prakash Singh's [42] digital procurement model demonstrated that blockchain could solve procurement problems such as fraud, theft, and obscurity in the supply chain. Raj et al. [43] demonstrate a blockchain-based smart contract that allows tamper-proof payment between buyers and suppliers through third-party logistics. More broadly, Nodehi et al. [44] found that e-procurement ecosystems using enterprise blockchain can reduce fraud and ordering costs during the entire e-procurement process. In complex, multi-party procurement environments, Ahmad et al. [31] found a successful adoption of blockchain for the purchasing coordination of granting oil and gas exploration and production where transparent equipment tracking and secure forwarding of a procurement request facilitates collaboration.

These applications demonstrate that blockchain enhances purchasing alliance practices by providing secure, traceable procurement processes and enabling trusted information exchange between buyers, suppliers, and third-party logistics providers. This directly supports blockchain's role as an inimitable resource that strengthens the operational effectiveness of purchasing alliance practices.

4.1.3. Vendor-Managed Inventory

Vendor-managed inventory practice refers to suppliers (vendors) who make production decisions and maintain inventory availability across the supply chain [13,21,26,27]. Our systematic review revealed 49 studies investigated vendor-managed inventory practice, with most focused on the traceability of products in high-compliance, safety-critical sectors.

While most of these studies focused on food and pharmaceutical product traceability to ensure quality and safe delivery, a few research studied the impact of blockchain on inventory management from circular economy perspectives [45–47], tracking the provenance of the tangible asset [48,49] and tracing equipment for multiple industries (e.g., Ho et al. 2021 [50–54]).

The pharmaceutical sector represents a significant research focus due to regulatory requirements. The Drug Supply Chain Security Act (DSCSA) requires the pharmaceutical industry, including manufacturers, distributors, and dispensers, to trace and share information about

prescriptions while they are distributed in the United States. (The Center of Supply Chain Studies (CSCS) “Drug Supply Chain Security Act and Blockchain” 21 June 2018. Available at: https://static1.squarespace.com/static/563240cae4b056714fc21c26/t/5b3426b088251b230ba9e6e5/1530144436146/C4SCS+White+Paper_+DSCSA+and+Blockchain+Study_FINAL3.pdf), driving blockchain adoption [55]. Studies have examined blockchain use to prevent counterfeit drugs in vaccine supply chain [49,56–58] and prescription drug traceability [54,59], demonstrating blockchain’s effectiveness across the complete pharmaceutical supply chain.

Blockchain enhances vendor-managed inventory through enhanced traceability and visibility [60–62], which increases operational efficiency and reduces compliance risks. From an RBV perspective, blockchain functions strengthen firms’ operational excellence in inventory management while simultaneously enabling better coordination with supply chain partners through transparent, immutable records.

4.1.4. Strategic Supplier Partnership

Strategic supplier partnerships involve collaboration between supply chain partners to achieve sustainable and operational efficiencies [20,23]. Blockchain supports these partnership practices by providing reliable information that enables more trustworthy relationships [63].

Our systematic review identified ten studies examining strategic supplier partnership. Agrawal et al. [64] demonstrated blockchain’s effectiveness in textile supply chains, showing that authenticating transactions at the operational level, such as transporting cotton from yarn manufacturer to fabric manufacturer, builds trust between partners.

Studies show blockchain promotes coordination between transparency and information availability. Kumar et al. [65] provide a blockchain-based model that allows stakeholders to access and validate product information. Fosso Wamba et al. [6] found a relationship between blockchain and supply chain performance; however, the study relied on limited measures of trading partners’ performance. Additionally, Niu et al. [66] found that manufacturers and suppliers differ in blockchain adoption preferences with suppliers reluctant to adopt unless customers’ uncertainty about the quality warrant investment.

Conditional factors further complicate adoption. Y. Cao et al. [67] analysis indicates that blockchain-based platforms might not be beneficial under high revenue-sharing contracts, suggesting that blockchain benefits may depend on contract structure and profit distribution arrangements.

Collectively, these findings indicate that blockchain enhances strategic supplier partnership practices through authentication and information exchange, though the effectiveness depends on market conditions and contract structures, highlighting the importance of implementation context for partnership outcomes.

4.1.5. Customer Relationship

Customer relationship practices focus on retaining customer loyalty through trust and satisfaction [20,23]. Blockchain strengthens customer relationships by providing accurate information and enhancing trust [67–69]. Our systematic review identified 22 studies examining blockchains’ application to customer relationships, with particular focus on loyalty programs that build customers’ trust [70].

Research demonstrates blockchain enhances customers’ trust by reducing information distortions and improving transparency [64,71–73]. Fosso Wamba et al. [6] found a significant positive relationship between blockchain and customer satisfaction outcomes. Similarly, Karamchandani et al. [74] found a significant and positive relationship for the perceived usefulness of enterprise blockchain in customer relationships.

Product transparency strengthens customer trust and purchase intentions. Studies show that providing product provenance and supply chain information builds customer confidence [75–77]. For example, Cao et al. [78] and Garaus and Treiblmaier [79] found that providing information about food products via blockchain-based platforms can influence consumers' trust, while Niu et al. [66] found that consumers would only purchase remanufactured products only if transparent information about material reuse exists. Although some studies have found blockchain enhances consumers' trust in product quality and purchase intention [80], others have found that the appearance of a devaluation effect on product quality can significantly reduce customers' purchase intention within the adoption of blockchain [81].

Collectively, these findings demonstrate blockchain strengthens customer relationships through product transparency and trust-building, though effectiveness depends on perceptions of product quality and information authenticity. This pattern reflects the RBV proposition that valuable, inimitable capabilities (like blockchain transparency) drive competitive advantage.

4.1.6. Information Sharing

Information sharing refers to the amount of information shared among partners in the supply chain [1,18–20,23]. Fifty-four studies examined how blockchain can achieve supply chain objectives through information sharing and the roles that blockchain plays at the upstream and downstream levels.

Kshetri [8] and Li and Zhou [82] provided case studies for the shipping industry in which blockchain solves communication issues with business partners and enables tracking of cargo movement. Blockchain addresses communication gaps through three consistent mechanisms: real-time tracking, transparent documentation, and automated information exchange. It increases transparency through product monitoring and information sharing within the supply chain [83,84].

From the upstream side, suppliers and manufacturers share information about raw materials and production. Research shows that using blockchain for information sharing with business partners improves supply chain transparency and enhances partners' trust [85–87]. However, trust and privacy remain significant barriers to information sharing [88]. Chou et al. [84] addressed this gap using a blockchain-based framework that allows firms to collaborate and share information confidentially through multiple private channels for each transaction (e.g., sales, purchase, inventory), allowing partners to enhance transparency while maintaining privacy.

In downstream post-production activities, product recalls presents risks and increases costs, particularly for food contamination or defective products [89,90]. Blockchain enables companies to trace products and recall specific products instead of the entire product line [71]. Agrawal et al. [91] provided a drug supply chain model that includes forward tracking (manufacturers to customers), and backward recall, helping identify counterfeit drugs and supporting manufacturers in recalling faulty drugs.

Using the lens of RBV, blockchain's ability to enhance transparency in the supply chain by reducing information distortion and providing verifiable records represents a spanning capability that provides competitive advantages to organizations [72,92].

4.1.7. Information Quality

The information quality in the supply chain refers to accuracy, adequacy, and trustworthiness, which supply chain members can rely on for decision-making [1,18,19,23]. Nineteen studies examined how blockchain impacts this practice, primarily by improv-

ing accuracy and integrity of data over the supply chain and minimizing information asymmetry [93].

Several studies examined how blockchain improves the security and quality of supply chain data across multiple industries including the dairy provides [94], healthcare industries [33,95], mining equipment manufacturers [96], and additive manufacturing in the aircraft industry [97]. These studies demonstrate that integrating blockchain into collaborative systems does secure data from manipulation. However, Choi and Luo [98] demonstrated through a fashion industry case study that high implementation costs outweigh blockchain's benefits in reducing demand volatility, deterring adoption among fashion firms.

These studies demonstrate that blockchain's ability to secure supply chain data from manipulation, enhancing data quality, represents a spanning capability under RBV that can provide competitive advantages to organizations, but that these advantages can be outweighed by implementation costs.

4.1.8. Postponement

Postponement represents an operational capability focused on delaying production or distribution decisions to better match demand [18–20,23]. Our systematic review found no research that investigated the impact of blockchain on postponement practices.

The absence of studies examining blockchain and postponement indicates an evidence gap rather than evidence that blockchain is unsuitable for postponement practice. Future research should examine whether blockchain-enabled visibility may support delayed differentiation, demand sensing, or late-stage distribution decisions.

4.2. The Conditions of Blockchain Adoption

Supply chain firms aimed to adopt blockchain for several reasons: information accuracy, transparency, product traceability, and communication [99]. Adopting blockchain for SCMPs can benefit some supply chain partners under some conditions. These conditions can be organized into four categories evident in the reviewed literature—economic, behavioral, institutional, and chain position factors—with technological readiness identified as an area where empirical evidence remains limited. For example, Niu et al. [66] found that manufacturers would adopt blockchain to provide information about materials used in remanufacturing products to consumers. In contrast, suppliers do not prefer blockchain adoption unless they guarantee ignorance of consumers' risk aversion or at least a low degree of consumer uncertainty about the quality of the remanufactured products. In addition, Xu et al. [63] suggested that manufacturers should not adopt blockchain unless the manufacturer's emission intensity is high. Industries are different in emission intensities; for instance, textile manufacturers produce higher emission intensities than electronic manufacturing. Although some manufacturers from both industries use recycled materials, it is inconsistent with blockchain adoption, such as Apple.

However, blockchain may not be beneficial under some circumstances. For example, Dong et al. [81] found that the devaluation coefficient on product quality in online channels influences purchase decisions with or without information sharing via blockchain. In other words, the devaluation effect can significantly reduce customers' purchase intention and does not generate profit for retailers' sales performance; thus, blockchain may not be beneficial in this case.

Moreover, consumers' privacy is considered a critical issue in the supply chain with high information transparency using blockchain. Due to privacy concerns, Zhang et al. [100] found that adopting blockchain for retailers reduces consumers' product valuation. Con-

sumers are only willing to pay and value retailers' products if information transparency about product promotion is high and the degree of consumers' privacy concerns is low.

Indeed, demand volatility hurts supply chain profit due to poor data quality of ordered quantity and forecasting [98]. Therefore, Choi and Luo [98] explored an analytical model with blockchain adoption in centralized and decentralized scenarios. They found that blockchain can significantly improve data quality, reduce demand volatility, and control overproduction in both scenarios. Hence, blockchain can positively impact the environment and social welfare, but it harms supply chain profitability due to the high cost of implementation. Choi and Luo [98] also proposed a settlement to this dilemma with two possible propositions to encourage supply chain firms to adopt blockchain. Within the decentralized boundary, either the government sponsor firms that implemented blockchain or the government provides an environmental taxation waiving program to those firms. Overall, government encouragement and support for adopting blockchain increases the potential social welfare for all supply chain members and maximizes profit [101].

According to the systematic literature review of this study, 112 studies in the literature review found that blockchain did impact SCMPs influencing supply chain performance. This strongly supports Carter's research [13], but the impact varies based on the type of practice and conditions fulfilled when adopting blockchain for supply chain management. Tables A3–A9 in Appendix B shows the number of studies associated with each practice and the number of studies that discussed the conditions of blockchain adoption for supply chain management. In the next section, we theorize blockchain for SCMPs to answer the third research question: *What theory or theories can assist scholars and practitioners in adopting blockchain for SCMPs?* Most studies in the literature review of this study build their findings without a theoretical basis. Therefore, we aim to fill this gap by answering the third research question of this study and build a theoretical model for the systematic literature review results.

5. Conceptual Model and Proposition Development

5.1. Theoretical Foundation

Only thirty-seven of the 112 studies applied a theoretical lens when investigating the impact of blockchain technology on supply chain management and four used inductive case studies aimed at theory building [8,65,102]. The fourth study by S. Cao et al. [103] was grounded on the strategy-as-practice theory for blockchain-based supply chain governance and called for theory development to support blockchain for supply chain management. We apply RBV and PBV to theorize blockchain's impact on SCMPs. In the following sections, we discuss in detail how blockchain-based technology can be theorized for SCMPs from the resource-based view (RBV) and practice-based view (PBV) perspectives.

5.1.1. The Resource-Based View

The resource-based view (RBV) suggests that resources and capabilities that are valuable, rare, inimitable, and not substitutable allow organizations to achieve competitive advantage [104,105]. Resources include tangible assets, such as IT infrastructure, network, and hardware, and intangible assets, such as information and vendor relationships [38]. A critical element of RBV is dynamic capability, which refers to the flexibility to integrate and re-configure the organization's functional competencies and the ability to respond to the changing environment [106].

Wade and Hulland [38] report three resource typologies: inside-out, outside-in, and spanning capability. Inside-out includes product quality [22], IT technical skills [107], and information technology practices [108]. Outside-in includes external relationship

management [107,109] and market responsiveness [110]. Spanning capabilities integrate inside-out and outside-in, such as partnerships and information management practices [38].

Prior research examined RBV in blockchain and supply chain contexts. Treiblmaier [111] offered a theory-based research framework examining blockchain's impact through a resource-based view, calling for systematic investigation of blockchain's transformational potential. A case study by Sundarakani et al. [72] confirms that blockchain strengthens the security of data records through immutability, enhancing competitive advantage. Similarly, Nandi et al. [89] developed a conceptual framework analyzing blockchain across multiple industries. Building on this foundation, we apply RBV to examine how blockchains function as different types of capabilities across distinct supply chain management practices.

5.1.2. The Practice-Based View

The practice-based view (PBV) explains firm performance through imitable activities or practices that can be relocated across organizations' domains [112]. Thus, RBV is used to explain competitive advantage [104], while PBV explains firm performance [112]. PBV focusses on how firms apply and use those practices; any firm can theoretically execute the same practice, but performance varies based on how well it is applied [112].

Blockchain should not be viewed as inherently inimitable strategic resource. Its real value arises when firms combine the technology with relational routines, governance arrangements, data standards, and partner-specific integration capabilities. Based on the lens of PBV, SCMPs considered imitated activities that can derive performance. The RBV captures why blockchain is valuable but PBV captures how SCMPs can drive performance when enabled by blockchain. Carter et al. [13] extended the PBV by including supply chain practices in the inter-organizational environment, guiding scholars to examine which practices influence performance. Thus, we employ both RBV and PBV in our examination of whether blockchain technology positively influences SCMPs and to explain the potential impact on firm performance.

From the RBV perspective, blockchain is a spanning capability that can integrate both inside-out resources (product quality, technical skills, information technology practices) and outside-in resources (supplier partnerships, market responsiveness) [38]. In contrast, SCMPs are imitable practices that depend on implementation quality [13]. Generally, practices tend to explain firm performance and enhance operational efficiencies [112]. Bromiley and Rau [113] argued that the interaction of applying practices across various organizations has resulted in a useful way to explain firm performance.

5.2. Propositions for Blockchain-SCMPs Integration

Consistent with the conditional patterns identified in Section 4.2, the following propositions are framed as expected relationships contingent on specific boundary conditions—including implementation cost, regulatory pressure, partner uncertainty, contract structure, and consumer trust—rather than as uniform or deterministic effects.

Proposition 1. Blockchain-enabled integration with external entities is associated with increases innovation capacity in supply chain contexts [28,40]. Thus, we predict:

P1a: Blockchain is expected to positively influence joint product development practice, particularly by enabling smart-contract-based coordination mechanisms [28] and internal-external integration [40].

P1b: This effect is expected to translate into supply chain performance gains indirectly through joint product development; however, the reviewed studies [28,40,41] do not yet specify the boundary conditions under which this relationship holds, representing a priority area for future empirical work.

Proposition 2. Blockchain secures procurement processes by reducing information leakage and fraud between supply chain partners and enhance trust [42–44]. Thus, we predict:

P2a: Blockchain is expected to positively influence purchasing alliances practice, particularly in complex, multi-party procurement environments where transparent tracking and tamper-proof payment mechanisms address existing fraud or coordination risk [31,43].

P2b: This effect is expected to translate into performance gains conditional on the procurement environment's baseline exposure to fraud or information asymmetry; where existing procurement controls are already strong, the incremental benefit is likely smaller.

Proposition 3. Blockchain improves the traceability, which is particularly valuable in high compliance and safety-critical sectors by providing real-time information for inventory management [7,62,114]. Thus, we predict:

P3a: Blockchain is expected to positively influence vendor-managed inventory practice, with the strength of this effect contingent on regulatory and compliance pressure—evidence is strongest in pharmaceutical and food sectors subject to traceability mandates such as the DSCSA [55], and may be weaker in sectors without comparable regulatory drivers.

P3b: This effect is expected to translate into performance gains through reduced compliance risk and operational efficiency, conditional on the sector's baseline traceability requirements.

Proposition 4. Blockchain promotes secure coordination between business partners by reducing data manipulation and fraud [65,115]. Thus, we predict:

P4a: Blockchain is expected to positively influence strategic supplier partnership practice, particularly when customer or partner uncertainty about product quality is high enough to warrant the investment [66]; where uncertainty is already low, suppliers may be reluctant to adopt regardless of blockchain's technical benefits.

P4b: This effect on supply chain performance is expected to be moderated by contract structure—Y. Cao et al. [67] found blockchain-based platforms may not be beneficial under high revenue-sharing contracts, indicating that profit-distribution arrangements condition whether partnership gains materialize.

Proposition 5. Blockchain provides accurate product information and provenance, which is associated with improved customer trust [78,80,82]. Therefore, we predict:

P5a: Blockchain is expected to positively influence customer relationship practice through transparency and provenance verification [78,79], particularly where consumer trust in product quality is otherwise low.

P5b: This effect is conditional on perceived product quality: Dong et al. [81] found that devaluation effects on product quality can offset or reverse the expected benefit, indicating this relationship is not uniformly positive and depends on baseline consumer perception.

Proposition 6. Blockchain supports communication issues between supply chain partners through real-time tracking and transparent documentation [8,82,84]. Thus, we predict:

P6a: Blockchain is expected to positively influence information sharing practice, particularly upstream between suppliers and manufacturers; however, this effect is conditional on trust and privacy concerns, which remain significant adoption barriers even when technical capability exists [88].

P6b: Where privacy-preserving mechanisms (e.g., private channels [84]) are implemented, the performance benefit is expected to be stronger; where such mechanisms are absent, privacy concerns may limit realized gains.

Proposition 7. Blockchains prevent data modification and reduces information asymmetry between supply chain partners [4,93]. Thus, we predict:

P7a: Blockchain is expected to positively influence information quality practice by securing data from manipulation across multiple industry contexts [94,97].

P7b: This effect on performance is conditional on implementation cost relative to the volatility-reduction benefit: Choi and Luo [98] found that high implementation costs can outweigh blockchain's benefits in reducing demand volatility, meaning the expected positive relationship may not hold in cost-sensitive contexts such as fashion supply chains.

5.3. Conceptual Model

Figure 4 presents the conceptual model integrating RBV and PBV perspectives. Blockchain technology functions as a spanning capability (RBV) that directly influences each of the seven SCMPs (Propositions 1a–7a). These practices, when enabled by blockchain, indirectly influence supply chain performance (Propositions 1b–7b). According to the findings of the literature review, organizations should consider specific conditions when adopting blockchain to enhance supply chain performance. Therefore, we identify the conditions under which the proposed propositions are applicable. The model demonstrates that blockchain's value emerges not only through its technical capabilities but also through its ability to enhance the effectiveness of SCMPs.

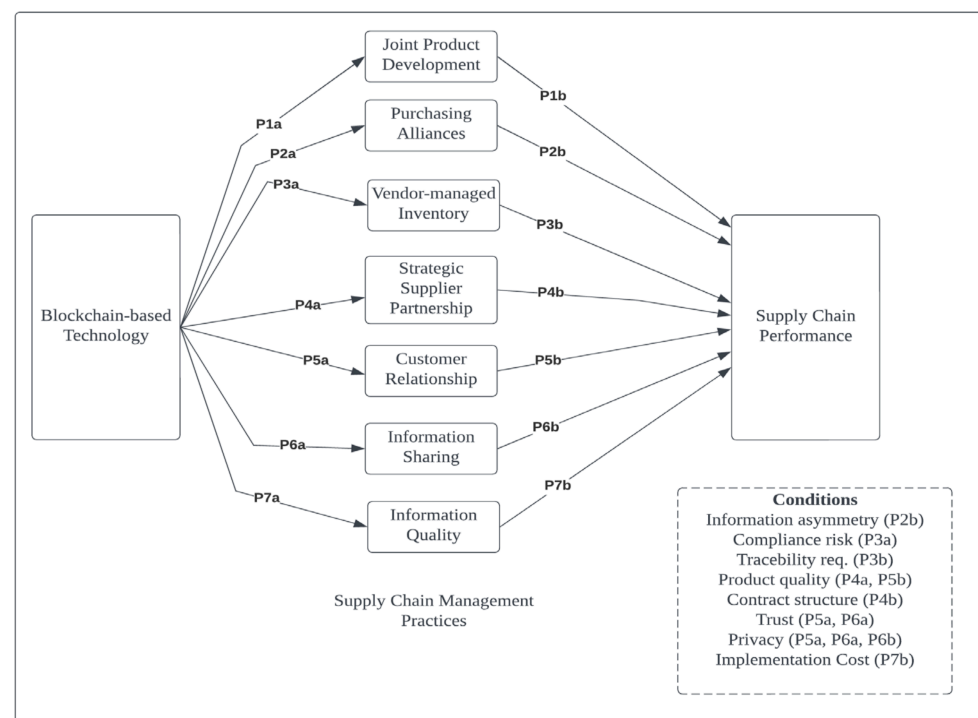


Figure 4. Conceptual Model of RBV and PBV.

6. Discussion

Having identified how blockchain adoption conditions vary by organizational role, cost structures, and market factors, we now examine what these patterns mean for practitioners, researchers, and theoretical development.

6.1. Implications for Practice

The adoption of blockchain technology for SCMPs is beneficial but firms must evaluate conditions across four categories: economic, behavioral, institutional, and chain position

factors (Table 3). Understanding how these factors intersect determines whether blockchain implementation will enhance or undermine supply chain performance.

- Economic conditions: The relationship between implementation costs and profit margins is foundational to adoption decisions. Ma et al. [116] found that manufactures are more likely to adopt blockchain only if the fixed cost associated with its use tend to be below a certain threshold. This principle extends beyond manufacturing; in agricultural industry, Y. Cao et al. [67] found that cooperatives face similar cost pressures. While blockchain reduces counterparty risk and enhances trust through improved provenance and payment transparency, these benefits may be offset by elevated operational costs, creating scenarios where adoption is disadvantageous rather than beneficial to participating cooperative.
- Behavioral conditions: Market conditions, particularly consumer preferences and trust dynamics, significantly shape adoption outcomes. Research by Ji et al. [7] found manufacturers should adopt blockchain only when consumer sensitivity to blockchain is high, indicating market readiness. Adoption conditions are also favorable when consumer sensitivity to product price is low, and sensitivity to product quality is high [77]. However, Biswas et al. [77] caution that firms should avoid blockchain adoption when consumer distrust is high, as blockchain becomes insufficient to make consumers aware of product quality.
- Institutional conditions: Choi an Luo [98] found that although blockchain can improve data quality and reduce demand volatility, high implementation costs can undermine supply chain profitability. Government sponsorship or environmental tax-waving programs can offset this cost barrier, increasing both incentives and social welfare across supply chain members [101].
- Chain position conditions: Adoption benefits differ markedly by actor position in the supply chain. Y. Cao et al. [67] found that buyers consistently benefit from blockchain adoption in agricultural networks, whereas cooperative partners experience mixed outcomes. Similarly, Wang et al. [117] found that e-commerce firms are more likely to adopt blockchain when use costs are low and anti-counterfeiting benefits are high, while manufactures are motivated, instead by brand-distribution incentives. Suppliers and retailers adopt only when their tolerable cost of joining the blockchain system remains below the overall joining fee and information-reliability threshold [118].

Table 3 shows supply chain firms' potential opportunities categorized by economic, behavioral, institutional, chain position, and technological conditions along with conditions of the adoption. Practitioners can use this information when considering blockchain adoption for their supply chain management. While these conditions are organized here by adoption opportunity, they could alternatively be categorized by determinant type (e.g., economic, behavioral, institutional, and chain position factors). Future work may benefit from applying such a framework more systematically across literature.

Table 3. Potential opportunities and conditions of blockchain adoption.

Opportunities	Conditions
Reduce operational cost (economic)	• If the transparency of the cost coefficient is larger than a certain threshold of information reliability [118]. • The supplier's tolerable cost of joining the blockchain system is less than the overall joining fee [118]. • If the retailer's tolerable cost is less than the overall joining fee, retailers are willing to adopt the blockchain [118].

Table 3. *Cont.*

Opportunities	Conditions
Improved information quality and transparency (behavioral)	- Firms should adopt blockchain only when consumer sensitivity to the product price is low and sensitivity to product quality is high [77]. - Guarantee ignorance of consumers' risk aversion or a low degree of uncertainty about the quality of remanufactured products [66]. - Consumers are only willing to purchase and value products if transparency about product promotion is high and consumers' privacy concerns are low [100].
Financial support (institutional)	Government support through environmental tax incentives can offset implementation cost and encourage adoption, which leads to increases in social welfare and supply chain profitability [98,101].
Enhance collaboration (chain position)	- If the fixed cost associated with using blockchain tends to be below a certain threshold, which is related to the manufacturers' profit [116]. - Eliminate the risk of payment delay and enhance trust between stakeholders by providing provenance information and addressing payment challenges [67].
Technological	The reviewed literature offers limited direct evidence on technological readiness (e.g., interoperability, infrastructure maturity) as a distinct adoption condition. This represents a gap for future research rather than an established finding.

6.2. Implications for Research

From the literature review results in this study, we pursued the gaps in the literature and provided future research recommendations for the information systems researchers. First, developers should emphasize developing and evaluating solutions for data privacy concerns when adopting blockchain. Also, researchers are still needed to examine to what extent blockchain provides equivalent benefits for supply chain members within the same or different industries. Empirical research is suggested to investigate blockchain's impact on supply chain performance for different industries (e.g., manufacturers, services, government, etc.).

These research priorities address a persistent theory–practice gap in blockchain adoption. While existing research demonstrates blockchain's theoretical potential, the field lacks empirical evidence, validating when and why organizations should adopt it for specific SCMPs. Privacy concerns, industry-specific variations, and differences between SCMPs must be investigated empirically and addressed theoretically. Pursuing these directions, researchers can move beyond explaining blockchain's capabilities to understanding the contextual factors determining successful implementation. Table 4 illustrates the research themes, gaps, and exemplary research questions for future research. It can be used by scholars to plan research exploring the impact of blockchain adoption on supply chain management and its benefits to industry.

Table 4. Research themes, gaps, and exemplary research questions.

Theme	Gap	Example Research Questions
Theory developments for blockchain and SCMPs	Lack of theories associated with blockchain adoption for SCMPs.	How does adopting blockchain technology for certain SCMPs provide opportunities for theory development? What are the challenges of blockchain adoption on existing theories?
Privacy concerns	Lack of possible solutions on the privacy concerns when adopting blockchain for supply chain management. Industries vary in the degree of transparency and privacy concerns.	To what extent do privacy concerns take place when adopting blockchain? How do firms emphasize privacy concerns when adopting blockchain for their industry/sector?
Investigate the impact of blockchain technology on the supply chain.	Lack of empirical evidence that examines the phenomenon of blockchain technology in supply chain management.	What is the impact of blockchain on specific SCMPs? How does the adoption of blockchain for SCMPs influence supply chain performance?
Policies and regulations	Lack of field studies on the efficiency of blockchain integration with traceability systems to the industry.	What are the regulations that should take place in terms of blockchain integration for a specific industry? What are the policy implications associated with blockchain adoption?

6.3. Implications for Theory

From the RBV perspective, blockchain technology can be theorized as the capability to integrate processes and share transactions across various organizations' domains within the supply chain. In contrast, PBV could identify when and under which conditions to adopt blockchain for SCMPs. By focusing on specific SCMPs, the PBV will lead firms to gain the most value from the adoption to organizations. The PBV will also provide recommendations for decision-makers when considering the adoption of blockchain technology for SCMPs.

In addition, theorizing blockchain for SCMPs from the perspective of RBV and PBV provides insight into the strategic plan of information system scholars by extant analysis at the industry or firm level. The RBV differs from the PBV by explaining competitive advantage rather than performance as a dependent variable. Blockchain requires inter-organizational systems, and PBV also requires inter-organizational practices to explain performance. Therefore, integrating both theories offers new topics for research and provides a potential view of research and theoretical implications.

Recent research by Hanisch [119] suggests that prescriptive theorizing supports scholars with the necessary tools to bridge the gap between real-world challenges and actionable strategies. Thus, theorizing blockchain for SCMPs assists scholars in bridging the gap between the practical application of blockchain in the supply chain and the research conceptualization of SCMPs.

6.4. Limitations and Future Research Recommendations

This study has several limitations. First, excluding articles written in a language other than English can potentially bias the outcome of this study. Second, in-progress papers from the search results might be published as a completed research paper in different journals and databases, which was not in the literature search results.

However, this review used four main databases, AIS e-Library, Business Source Premier, ScienceDirect, and ProQuest Central. While our four databases provide strong

coverage of information systems and supply chain literature, future reviews could incorporate additional sources like Scopus or Web of Science to further strengthen international coverage. More recent results from a larger basket of journals could be reviewed to see changing environments and cultures impact the results found through this review. Also, future research can examine blockchain impacts on postponement practice or other domains such as supply chain finance and sustainability.

7. Conclusions

This systematic review demonstrates that blockchain adoption for SCMPs is not universally beneficial; rather, it creates value conditionally, contingent on organizational role, cost structures, and market conditions. By synthesizing 112 papers on blockchain technology, this study provides details on seven of eight SCMPs and their usefulness when integrated with blockchain to improve supply chain efficiencies.

The study's primary contribution is a systematic, comparative synthesis of existing evidence across seven SCMPs, moving beyond single-practice or purely technological framing to practical adoption guidance. Rather than asking whether blockchain works, this research asks when it works, for whom, and why. The study theorizes blockchain for SCMPs from two theoretical lenses, the RBV and PBV, where RBV explains blockchain as a capability for process integration and transaction sharing; and PVB explains when and under which conditions organizations should deploy this capability. Together, these theoretical lenses enable decision-makers to assess blockchain's feasibility within their specific organizational context.

This study also provides practical guidance to both practitioners and researchers that will allow them to identify appropriate blockchain projects. Practitioners gain a better understanding of organizational roles and market factors that impact adoption decisions across seven SCMPs. It also identifies research gaps in the areas of privacy solutions, cross-industry equivalence, empirical validation, and SCMP-specific impacts that researchers can use to plan their future research projects. Overall, the reviewed literature suggests that blockchain has considerable potential to support several SCMPs, particularly those that rely on traceability, information integrity, and inter-organizational trust. However, the strength of empirical evidence varies across different practices and is constrained by the heterogeneous research designs.

Supplementary Materials: The following supporting information can be downloaded at <https://www.mdpi.com/article/doi/s1>.

Author Contributions: Conceptualization, A.A. and D.G.; literature review, A.A.; collecting review papers, A.A.; reviewing papers, A.A. and D.G.; methodology, A.A. and D.G.; visualizations, A.A. and D.G.; results, A.A.; writing—original draft, A.A.; writing—review and editing A.A. and D.G. All authors have read and agreed to the published version of the manuscript.

Funding: This research was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia, under the project number KF264254.

Data Availability Statement: Research reviews are in Appendix B.

Acknowledgments: The authors are thankful to the Deanship of Scientific Research at King Faisal University for funding this research.

Conflicts of Interest: The authors declare that there is no conflict of interest.

Abbreviations

The following abbreviations are used in this manuscript:

SCMPs	Supply chain management practices
RBV	Resource-based view
PBV	Practice-based view

Appendix A

Appendix A.1. Search Terms and Identified Studies

Table A1 shows the search terms used and the results for the total studies associated with each database. Below are the total studies after duplicates were removed.

Table A1. Search terms and identified studies for each database.

Search Terms	AIS e-Library	Business Source Premier	Science Direct	ProQuest Central
	Hits	Hits	Hits	Hits
“Blockchain” AND “Supply chain”	88	99	453	4
“Blockchain” AND “Supply chain management”	27	63	155	3
“Blockchain” AND “supply chain management practice/s”	0	2 with ‘s’	4	0
“Blockchain” AND “supply chain practice/s”	0	2 with ‘s’	7	0
“Blockchain” AND “Joint Product Development”	1	0	0	0
“Blockchain” AND “Product/s Development”	25	22	5	2
“Blockchain” AND “Purchasing Alliance/s”	0	0	0	0
“Blockchain” AND “Purchasing”	57	14	53	1
“Blockchain” AND “Purchase/s”	57	22 20 with ‘s’	53	2
“Blockchain” AND “Vendor-managed Inventory”	0	1	0	0
“Blockchain” AND “Inventory management”	4	8	5	0
“Blockchain” AND “Strategic Supplier Partnership”	0	1	0	0
“Blockchain” AND “Supplier Partnership/s”	0	1	0	0
“Blockchain” AND “Supplier/s”	0	25 30 with ‘s’	63	2
“Blockchain” AND “Customer Relationship/s”	18	11 6 with ‘s’	3	1
“Blockchain” AND “Customer Relationship Management”	13	10	2	0
“Blockchain” AND “Information Sharing”	19	24	55	0

Table A1. *Cont.*

Search Terms	AIS e-Library Hits	Business Source Premier Hits	Science Direct Hits	ProQuest Central Hits
“Blockchain” AND “Information Quality”	9	9	3	0
“Blockchain” AND “Postponement”	7	1	1	0
Total	325	371	862	15
Total after duplicates removed	135	135	525	7
Total duplicated papers across databases		3		
Total papers from all sources		799		

Appendix A.2. List of Journals and Number of Associated Studies

Table A2 shows the list of journals, its subject-focused area, and the number of studies. Thirty-four journals are within the information systems discipline or related fields, with eighty-four studies. Six journals are related to supply chain management and logistics, with sixteen studies. Ten journals are within other fields, with twelve studies.

Table A2. List of Journals and Number of Associated Studies Included in the Review.

#	Journal	Journal Subject Areas	# of Associated Studies
1	Advanced Engineering Informatics	Engineering, ISM, and AI	1
2	Automation in Construction	MSOR and engineering	1
3	Blockchain: Research and Applications	CSA	2
4	Computer Communications	Computer networks and engineering	1
5	Computers and Industrial Engineering	Mathematics, ISM, MSOR, and Engineering	15
6	Computers and Electronics in Agriculture	Agronomy and veterinary science, forestry, and CSA	1
7	Computers in Biology and Medicine	CSA, and health informatics	1
8	Computers in Industry	ISM, MSOR, CS applications, and engineering	2
9	Current Research in Environmental Sustainability	Management, monitoring, policy / law, ecology, and social science	1
10	Electronic Commerce Research and Applications	ISM, MSOR, IT innovation, AI, CSA	2
11	Enterprise Information systems	ISM, CSA, SCM, and MSOR	1
12	European Journal of Operational Research	Mathematics, ISM, MSOR, and CSA	4
13	Expert Systems with Applications	MSOS, ISM, IT innovation, AI, CSA, and engineering	4
14	Food Control	Food science	2
15	Future Generation Computer Systems	ISM, CSA, and computer networks	2
16	Industrial Marketing Management	Marketing	1

Table A2. *Cont.*

#	Journal	Journal Subject Areas	# of Associated Studies
17	Informatics in Medicine Unlocked	ISM, CSA, health informatics, and public health policy	1
18	Information and Management	ISM	1
19	Information Processing and Management	ISM, information science, and CSA	1
20	Information Systems and e-Business Management	ISM and e-business design	1
21	International Journal of Information Management	ISM, Organizational behavior and HRM, and information science	9
22	International Journal of Intelligent Networks	AI, computer networks, and signal processing	1
23	International Journal of Production Economics	Economics, MSOR, and engineering	6
24	Internet of Things	Energy, IT and innovation, CSA, engineering	1
25	Journal of Air Transport Management	Law, transportation, decision sciences, strategy, and management	1
26	Journal of Business Research	Business and international management and marketing	2
27	Journal of Cleaner Production	Renewable energy, sustainability, management, monitoring, policy/law, and waste management	6
28	Journal of Environmental Management	Renewable energy, sustainability, management, monitoring, policy/law, and waste management	1
29	Journal of Industrial Information Integration	ISM, MSOR	2
30	Journal of Information Security and Applications	ISM, CSA, information science, and computer networks	1
31	Journal of Information Systems	ISM	1
32	Journal of King Saud University—Computer and Information Sciences	Computer science	1
33	Journal of Manufacturing Systems	Engineering	1
34	Journal of Open Innovation: Technology, Market, and Complexity	Economics, ISM, statistics, MSOR, business, management and accounting, IT and innovation, finance, and decision science.	2
35	Journal of Retailing and Consumer Services	Marketing	1
36	Journal of Supply Chain Management Systems	SCM	1
37	MISQ Executive	ISM	2
38	Omega	ISM, MSOR, strategy, and management	1
39	Research in Transportation Business and Management	Tourism, hospitality, MSOR, business, economics, strategy and management, and transportation	1

Table A2. *Cont.*

#	Journal	Journal Subject Areas	# of Associated Studies
40	Resources Policy	Geography, renewable energy, sustainability, management, monitoring, and economics	1
41	Resources, Conservation and Recycling	Renewable energy, sustainability, management, monitoring, policy/law, and waste management	1
42	Robotics and Computer Integrated Manufacturing	AI and engineering	1
43	Smart Agricultural Technology	Agricultural and biological sciences	1
44	Social Sciences and Humanities Open	Psychology, decision, and social sciences	1
45	Supply Chain Forum: An International Journal	SCM	2
46	Supply Chain Management: An International Journal	SCM	5
47	Sustainable Cities and Society	Renewable energy, sustainability, management, monitoring, policy/law, engineering, and IT and water science	1
48	Technological Forecasting and Social Change	Psychology, MSOR, business, IT and innovation, strategy, and management	5
49	Technology in Society	Sociology and political science, human factors and ergonomics, and business	2
50	Transportation Research Part E	Transportation, MSOR, and business	6
Total			112

Abbreviations: Information Systems and Management (ISM), Management Science and Operation Research (MSOR), Computer Science Applications (CSA), Artificial Intelligence (AI), Supply Chain Management (SCM), Human Resource Management (HRM).

Appendix B

This appendix lists all 112 peer-reviewed studies analyzed in this systematic literature review, organized by their primary SCMPs. Tables A3–A9 includes secondary SCMPs associated with paper, methodology used, and the study type (Conceptual, Implementation, Combined, or Model/Prototype). There were no studies related to the postponement practice. Tables A3–A9 presents the characteristics of all studies included in this review by applying Jadhav and Deshmukh [33] methodology for quality assessment.

Table A3. Studies by Joint Product Development (JPD) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Benzidia et al., 2021 [40]	SSP	Implementation	Empirical
Cole et al., 2019 [28]	VMI	Conceptual	Explanation analysis
Xu X. et al. 2023 [41]		Conceptual	Decision analysis

Table A4. Studies by Purchasing Alliances (PA) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Ahmad et al., 2022 [31]	VMI	Conceptual	Literature review
Chang J. et al., 2021 [120]		Model	System design
Nodehi et al., 2022 [44]		Model	System design
Raj et al., 2022 [43]	IS	Model	System design
Raj Kumar Reddy et al., 2021 [30]	VMI	Conceptual	Systematic review
Yadav and Prakash [42]		Model	System design

Table A5. Studies by Vendor-Managed Inventory (VMI) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Ahmad et al., 2021 [60]	IS	Model	Use cases
Akhtaruzzaman Khan et al., 2022 [121]		Conceptual	System design
Alamsyah et al., 2023 [122]	IS	Model	System design/Case
Bager et al., 2022 [51]	IS	Implementation	Case
Boubeta-Puig et al., 2021 [123]	IS	Combined	System engineering
Bumblauskas et al., 2020 [52]		Model	Use case
Centobelli et al., 2022 [46]	IS	Model	Triangulation
Diniz et al., 2021 [124]	IS	Model	Design science
Erol et al., 2022 [45]	SSP	Implementation	Quality function deployment
Friedman and Ormiston, 2022 [125]		Implementation	Qualitative
Kumar G. et al., 2020 [65]	SSP, IS, IP	Combined	System design/experimental
George et al., 2019 [53]	IS	Model	Model development
H. Hu et al., 2023 [49]		Model	Decision analysis
H. Liu, 2022 [126]		Conceptual	Exploratory
Hew et al., 2020 [127]		Implementation	Empirical
Ho et al., 2021 [50]		Model	System proposal/sensitivity analysis
J. Xu et al., 2023 [128]	IS	Model	Design science
Ji et al., 2022 [7]	CR	Conceptual	Decision analysis
Kamble et al., 2020 [62]		Conceptual	Structural modeling/evaluation
Khan et al., 2022 [129]		Model	Interview
Kuhn et al., 2021 [130]		Combined	System design/simulation
Laforet & Bilek, 2021 [99]	IS, IQ	Conceptual	Case
Markus & Buijs, 2022 [131]		Combined	Literature review/case
Mattke et al., 2019 [58]	IS	Model	System design/qualitative
Omar et al., 2022 [132]		Model	System design
Paul et al., 2021 [133]	IS	Implementation	Empirical
Paul et al., 2022 [134]		Implementation	Mixed method
Ramirez Lopez et al., 2022 [135]		Model	Detailed analysis

Table A5. Cont.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
S. Cao et al., 2021 [78]	CR	Combined	Design science/experiment
S. Cao et al., 2022 [103]	IS	Combined	Exploratory Case
Saxena & Sarkar, 2023 [114]		Conceptual	Decision analysis
Sheldon, 2022 [48]		Model	Design science
Sreenu et al., 2022 [57]		Combined	System design/experimental
Stranieri et al., 2021 [136]	IS	Implementation	Case
Teodorescu & Korchagina, 2021 [54]		Conceptual	Case/comparative analysis
Thakur & Breslin, 2020 [137]		Model	System design
Turki et al., 2023 [138]	IS	Combined	System design
Venkatesh et al., 2020 [139]	IS	Model	System design
X. Liu et al., 2021 [59]		Combined	System design/Case
X. Xu et al., 2023 [63]		Conceptual	Decision analysis
X. Zhang et al., 2023 [140]		Conceptual	Decision analysis
Y. Li et al., 2023 [141]	SSP	Conceptual	Impact analysis
Yong et al., 2020 [56]		Combined	System design/experimental
Yontar, 2023 [47]		Conceptual	PESTEL/multi-criteria
Yousefi et al., 2022 [68]	IS, CR	Combined	Fuzzy analysis
Zhong et al., 2023 [101]		Conceptual	Decision analysis

Table A6. Studies by Strategic Supplier Partnership (SSP) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Eluubek kyzy et al., 2021 [142]		Combined	System design/experimental
Niu et al., 2022 [66]	CR, IQ	Conceptual	Decision analysis
Oguntegbe et al., 2022 [143]		Model	Thematic analysis
T. K. Agrawal et al., 2021 [64]	CR	Combined	Case/simulation

Table A7. Studies by Customer Relationship (CR) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Abdallah & Nizamuddin, 2023 [75]		Model	Design science
Biswas et al., 2023 [77]		Conceptual	Decision analysis
Garaus & Treiblmaier, 2021 [79]		Implementation	Experiments
J. Wang et al., 2023 [117]		Conceptual	Decision analysis
Jain et al., 2022 [144]		Implementation	Empirical
Karamchandani et al., 2020 [74]	IQ	Implementation	Empirical
Kshetri, 2021 [71]	IS	Conceptual	Case
S. Hu et al., 2022 [76]		Implementation	Case
Sun et al., 2022 [69]		Combined	Quantitative
Sundarakani et al., 2021 [72]	IS	Model	Action research/Case

Table A7. Cont.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Treiblmaier & Garaus, 2023 [80]		Implementation	Experiments
Utz et al., 2023 [70]		Model	Design science
Y. Cao et al., 2022 [67]	SSP	Combined	Case
Zhili Zhou et al., 2021 [73]		Combined	System design/simulation

Table A8. Studies by Information Sharing (IS) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Ali et al., 2021 [102]		Model	Exploratory cases
Anitha & Srimathi, 2021 [145]		Combined	Simulation/Experiment
Arunmozhi et al., 2022 [146]		Combined	System design/experimental
Bai et al., 2022 [83]		Combined	Best-worst method
Celik et al., 2023 [92]	IQ	Implementation	Qualitative
Chou et al., 2023 [84]		Model	System design
D. Agrawal et al., 2022 [91]		Combined	System design/experimental
Dong et al., 2021 [81]	CR	Conceptual	Decision analysis
Dwivedi et al., 2020 [115]		Model	System design
Fosso Wamba et al., 2020 [6]	SSP, CR	Implementation	Empirical
Hasan et al., 2019 [147]		Combined	System design
Jensen et al., 2019 [85]	IQ	Implementation	Case
Kshetri, 2018 [8]	IQ	Conceptual	Combining cases
L. Li & Zhou, 2021 [82]	IQ	Conceptual	Case
Longo et al., 2019 [93]	IQ	Implementation	Simulation
Ma et al., 2022 [116]		Implementation	Differential game method
Nandi et al., 2020 [89]		Conceptual	Abductive research
Rogerson & Parry, 2020 [90]	IQ	Conceptual	Case
S. E. Chang et al., 2019 [148]		Model	System design
Sarfaraz et al., 2023 [149]		Combined	System design/simulation
S. Kumar et al., 2023 [150]		Implementation	Qualitative
Tönnissen & Teuteberg, 2020 [86]		Model	Case/Explanatory
W. Liu et al., 2021 [151]		Conceptual	Systematic review
Wu & Zhang, 2022 [96]	IQ	Model	System design
Y. Wang et al., 2019 [87]	IQ	Conceptual	Qualitative
Yadav & Singh, 2020 [61]	IQ, CR	Conceptual	PCA/Fuzzy evaluation
Z. Zhang et al., 2022 [100]		Conceptual	Decision analysis
Zhongbao Zhou et al., 2022 [118]	IQ	Conceptual	Decision analysis
Bader et al., 2021 [88]		Combined	System design/experimental
Hader et al., 2022 [152]		Combined	Case
Sourabh Kumar & Barua, 2023 [153]		Conceptual	Decision analysis
X. Li et al., 2021 [154]		Implementation	Empirical
Z. Wang et al., 2020 [155]		Combined	System design/Case
Zheng et al., 2021 [156]		Combined	Conditional value-at-risk

Table A9. Studies by Information Quality (IQ) with Type and Methodology.

Study (Author, Year)	Alt. SCMPs	Study Type	Methodology
Choi & Luo, 2019 [98]		Conceptual	Exploratory
Jadhav & Deshmukh, 2022 [33]		Conceptual	Systematic review
J. Li et al., 2023 [95]		Combined	System design/experimental
Kasten, 2019 [94]		Model	Design science
Mandolla et al., 2019 [97]		Conceptual	Case analysis

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