

Digitalization and artificial knowledge for accountability in SCM: a systematic literature review

Digitalization
and artificial
knowledge

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Abstract

Purpose – In this study, the authors examine artificial knowledge as a fundamental stream of knowledge management for sustainable and resilient business models in supply chain management (SCM). The study aims to provide a comprehensive overview of artificial knowledge and digitalization as key enablers of the improvement of SCM accountability and sustainable performance towards the UN 2030 Agenda.

Design/methodology/approach – Using the SCOPUS database and Google Scholar, the authors analyzed 135 English-language publications from 1990 to 2022 to chart the pattern of knowledge production and dissemination in the literature. The data were collected, reviewed and peer-reviewed before conducting bibliometric analysis and a systematic literature review to support future research agenda.

Findings – The results highlight that artificial knowledge and digitalization are linked to the UN 2030 Agenda. The analysis further identifies the main issues in achieving sustainable and resilient SCM business models. Based on the results, the authors develop a conceptual framework for artificial knowledge and digitalization in SCM to increase accountability and sustainable performance, especially in times of sudden crises when business resilience is imperative.

Research limitations/implications – The study results add to the extant literature by examining artificial knowledge and digitalization from the resilience theory perspective. The authors suggest that different

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strategic perspectives significantly promote resilience for SCM digitization and sustainable development. Notably, fostering diverse peer exchange relationships can help stimulate peer knowledge and act as a palliative mechanism that builds digital knowledge to strengthen and drive future possibilities.

Practical implications – This research offers valuable guidance to supply chain practitioners, managers and policymakers in re-thinking, re-formulating and re-shaping organizational processes to meet the UN 2030 Agenda, mainly by introducing artificial knowledge in digital transformation training and education programs. In doing so, firms should focus not simply on digital transformation but also on cultural transformation to enhance SCM accountability and sustainable performance in resilient business models.

Originality/value – This study is, to the authors' best knowledge, among the first to conceptualize artificial knowledge and digitalization issues in SCM. It further integrates resilience theory with institutional theory, legitimacy theory and stakeholder theory as the theoretical foundations of artificial knowledge in SCM, based on firms' responsibility to fulfill the sustainable development goals under the UN's 2030 Agenda.

Keywords Artificial knowledge, Digitalization, Accountability, Resilience theory, Sustainable performance, Sustainable development goals

Paper type Literature review

Introduction

Digital transformation, through platforms, websites, social media, artificial intelligence (AI) and connected devices, has led to “datafication” (Gupta and George, 2016; Di Vaio and Varriale, 2020), which has attracted considerable attention from researchers and business practitioners. With such rapid digital progress, businesses are seeking to strengthen their decision-making, accountability and relationships with various societal actors (Ramírez and Tejada, 2019). Likewise, the COVID-19 pandemic has been an enabler of digital transformation, facilitating not only better operational performance through cost reduction and higher strategic performance but also greater opportunities to find new business markets (Wamba *et al.*, 2022). However, the growth of the digital wave raises substantial and debatable concerns about how current industry platforms are eroding digital technologies' resilience to become data-driven and lead to transformative change (Di Vaio *et al.*, 2020; Battisti *et al.*, 2022). In fact, industry efforts are not enough to respond to digital waves at different levels and with different intensities (Ardito *et al.*, 2018). Consequently, artificial knowledge has come to light as a relevant concept and choice for business operations, especially in supply chain management (SCM) (Samuel *et al.*, 2011).

The basic idea is to use artificial knowledge to transform business models driven by innovation (Pietronudo *et al.*, 2022) and to spread “datafication” through stakeholders (Del Giudice *et al.*, 2023). The development and adoption of artificial knowledge is expected globally (Mikalef and Gupta, 2021), with resulting positive effects on SCM operations (Brinch *et al.*, 2018). Some have even referred to artificial knowledge as the “life blood” of SCM since it succeeds in synchronizing knowledge information from formal and informal sources (Nayal *et al.*, 2021). Business organizations can thus “learn by doing” via artificial knowledge (Enholm *et al.*, 2022), the benefits of which apply to reduced product and service cycle times; in turn, this brings added value within the supply chain to offset the necessary investments for artificial knowledge adoption.

Since the pandemic, business strategy development has focused on coping with external changes by reducing risk components. Indeed, the pandemic crisis has brought attention to resilience issues (Das *et al.*, 2022), with scholars calling for new research on resilience theory in the SCM context (Veile, 2022). AI includes the corpus of knowledge allowing machines to behave in intelligent human-like manners (Bawack *et al.*, 2021); hence, AI can generate positive impacts on the agility, resilience and performance of a supply chain (Dubey *et al.*, 2022). It is therefore imperative to incorporate the artificial knowledge management concept within the study of resilience in SCM (Leoni *et al.*, 2022). However, the resilience perspective of artificial knowledge remains unclear.

Additionally, the literature has paid less attention to the link between artificial knowledge and the pillars of sustainability (Gansser and Reich, 2021). With regard to SCM, there may be a

conflict between the concept of sustainability, which focuses on efficiency, and the concept of resilience, which emphasizes effectiveness (Negri *et al.*, 2021). A potential solution is the development of a flexible value chain that holds sustainability goals as its priority (Dwivedi *et al.*, 2021). Sustainable collaborations can be decisive in improving SCM (Le *et al.*, 2021), given that stakeholder engagement is a vital component of sustainability reporting to achieve business legitimacy (D'Adamo, 2022). Moreover, sustainable resource management models promote competitive advantages for businesses (Appolloni *et al.*, 2022). Hence, accountability efforts in supply chain operations are seen as a dynamic resource that assists the acceptance of the Sustainable Development Goals (SDGs) under the United Nations (UN) 2030 Agenda, which enacts environmental and social welfare policies to achieve sustainable performance (Mol, 2010). The incorporation of the accountability mechanism in SCM is interpreted as the basis of good governance that promotes organizational openness and communication (Valentinov *et al.*, 2019), thereby enabling stakeholders to understand and take new action in supply chain operations, particularly in production and delivery processes (Gold and Heikkurinen, 2018). In contrast, without accountability, SCM operations can become vulnerable to risk, leading to poor financial performance and reporting and auditing results (Sibanda *et al.*, 2020).

According to resilience theory, artificial knowledge examines the complex interrelationships between various digital industrial environments and operational agility (Ivanov, 2021). The theory highlights the relevant implications of artificial knowledge about SCM production and deployment, particularly those associated with novel data and information types (Sambasivan *et al.*, 2009; Liu *et al.*, 2013). Although AI can promote more resilient supply chains, there are shortcomings in its application (Belhadi *et al.*, 2022). Some studies (e.g. Helo and Hao, 2022; Rana *et al.*, 2022) have pointed out encouraging improvements, citing artificial knowledge as evidence of the evolution of digital knowledge in SCM. These developments are of great importance because of their potential impact on accountability (Kumar *et al.*, 2020; Sibanda *et al.*, 2020) and industrial innovation (Javaid *et al.*, 2022). Ergo, by following sustainable principles, digitization and SCM can find mutual benefits characterized by effectiveness and efficiency (Chen *et al.*, 2022). This underscores an evident shortcoming in the existing body of knowledge, which demands the examination of performance evaluation systems to assess both sustainability and resilience in supply chains (Shishodia *et al.*, 2021; Hervani *et al.*, 2022). Such systems should include basic digital transformation outcomes in assessing SCM resilience (Yin and Ran, 2022), thereby distinguishing and combining the role of technology and governance (Faruquee *et al.*, 2021). The links between the issues introduced here are still weak from a conceptual standpoint; therefore, through the exploration and comprehension of multiple research perspectives (Saunders *et al.*, 2015), this study sought to answer two main research questions (RQs), as follows:

RQ1. What is artificial knowledge in the digitalization of SCM?

RQ2. Does the digitalization of SCM increase accountability and sustainable performance?

In our attempt to address these RQs, we analyzed research evidence on these topics by employing a bibliometric analysis of 135 English-language publications from 1990 to 2022 taken from the Scopus database and Google Scholar. The purpose of this analysis was to understand, in-depth, the patterns, methodologies, theoretical foundations, top journals, prominent countries and specific topics in this research area (Paul *et al.*, 2021). We utilized the VOSviewer software version 1.6.18 to create and develop the bibliometric linkages (Van Eck and Waltman, 2014; Paul and Criado, 2020). To advance the SCM literature, this study's systematic literature review (SLR) examined the body of research on artificial knowledge and digitization in SCM through the themes of accountability and sustainable performance for the achievement of the UN 2030 Agenda.

The remainder of this study is structured in six sections. [Section 2](#) comprehensively reviews the theoretical bases of artificial knowledge, digitalization and accountability from the UN's SDG perspective. [Section 3](#) explains the methods and data analysis approaches applied in the study. [Section 4](#) presents the analysis results. [Section 5](#) discusses the findings and describes their implications for theory, practice and future studies. The sixth and last section addresses the study's limitations and offers conclusions.

Theoretical background

Artificial knowledge is considered the foremost area in knowledge management, which gains new principles, compiles organizational knowledge, and revolutionizes a firm into a "knowledge organization" in the digital transformation period. Among the core knowledge management areas are knowledge acquisition and interpretation. In terms of artificial knowledge, AI drives the basic principles of fostering the acquisition and interpretation of digital knowledge flows ([Stella et al., 2022](#)), including in micro-, small-, and medium-scale businesses ([Kumar et al., 2022](#)).

The concept of artificial knowledge in SCM has no universal definition and is still in the emerging and developing stage ([Kayıkci, 2018](#)). Some scholars have nonetheless tried to define it; for instance, [Büyükoğkan and Göçer \(2018\)](#) described the digital supply chain as a value-driven digital system that introduces new methods, latest technologies, and digital analytics into SCM, thereby creating new revenue streams to strengthen business models. Building a digital platform and incorporating data analytics in SCM can maximize value and bring digital knowledge from a variety of sources ([Schilling and Seuring, 2021](#)). The advent and outcomes of artificial knowledge in the twenty-first century have fostered various potential developments and comprehensive evaluations in different sectors ([Vinuesa et al., 2020](#)). As a result, business organizations now face increasing stakeholder pressure to address digital challenges and improve business operations through digital knowledge and innovations, so as to preserve the integrity of the ecosystem through the digital knowledge management system (KMS) ([Joyce and Paquin, 2016](#); [Martins et al., 2019](#)).

Over the last decade, countries have increasingly adopted the UN 2030 Agenda and aligned their business priorities with its global SDGs ([de Paula Arruda Filho, 2017](#)). To this end, several knowledge flow methods ([Hendriks and Vriens, 1999](#)) have been applied in knowledge acquisition techniques to obtain tacit digital knowledge and expert intelligence systems from domain experts. These techniques are formally functional as they expand the knowledge databases of KMSs and formally document online information ([Cherian and Arun, 2022](#)). In addition, multiple knowledge discovery approaches, such as AI-related methods, are effective in identifying interlinkages and trends in knowledge databases to create new digital intelligence ([Del Giudice et al., 2020](#)). To promote digital knowledge in such databases, various taxonomies and knowledge maps are often formed as strong foundations for the construction of the databases ([Queiroz et al., 2021](#)). In this regard, the implementation of artificial knowledge in knowledge management helps encode digital information in KMSs. For example, multiple AI methods, such as intelligent agents, are applicable to support knowledge search and retrieval techniques in KMSs.

Artificial knowledge and digital transformation for accountability in SCM: the resilience perspective

Both the breadth and complexity of resilience theory are relevant in understanding its role, especially in the UN 2030 Agenda ([Sullivan and Wamba, 2022](#)). Notably, the resilience theory underpins the theoretical foundation of the artificial knowledge concept. Events like the COVID-19 crisis have catalyzed firms' digital transformation in their processes and structures. In such crisis situations, the challenges in finding new resources and capabilities

highlight the need for resilience among institutions, organizations, and individuals (Faruquee *et al.*, 2021). Unexpected crises like the pandemic give managers the chance to analyze their SCM and identify the causes of its disruptions (Fosso Wamba *et al.*, 2022). Resilience, in this context, is the capacity of organizations to take a proactive attitude towards supply chain disruptions and subsequently overcome them to recover balance (Sullivan and Wamba, 2022). Indeed, SCM under extreme conditions is an important topic in the literature (Sodhi and Tang, 2021), which can be intercepted by its relationship with AI (Dohale *et al.*, 2022). Algorithmic fairness is evaluated as much in socio-technical issues (Dolata *et al.*, 2022) as it is in business analytics (De-Arteaga *et al.*, 2022).

A resilient business model represents business organizations' operational capacity to quickly predict, adapt to, respond to, and recover from an unpredictable disruption (Herold *et al.*, 2021). This business model protects against unforeseen events that jeopardize sustainability; thus, it offers several significant strategic perspectives for digitalization and sustainable development. Predominantly, it advocates exchange relationships with different peers, which stimulates peer-to-peer knowledge transfer and acts as a palliative mechanism to build digital knowledge (i.e. artificial knowledge) for stronger digitization as well as to prepare for future crises that threaten sustainable development (Wamba *et al.*, 2017).

Several researchers have pointed out that resilience is among the UN's drivers of SDG achievement, claiming that for a country to be "sustainable," it needs to work according to "sustainable, resilient, and inclusive principles" (Di Vaio *et al.*, 2021). Considering technologies as enablers of sustainability goals, the role of artificial knowledge in a resilient and sustainable business model indicates that digitalization is able to address stakeholder concerns and respond to external pressure (Modgil *et al.*, 2021; Latif *et al.*, 2022). Indeed, resilience theory allows a better analysis of the linkage between digitalization, artificial knowledge, and accountability for sustainable supply chain performance, which is a neglected aspect in the literature. Among the few studies in this area, Novak *et al.* (2021) compared equilibrium-based SCM resilience with the view of SCM as a complex and adaptive mechanism.

The resilience lens guides firms' need to strengthen digital platforms to maintain legitimacy in their sustainability behavior. Firms also have to be transparent about their accountability actions to answer stakeholder judgments and meet growing market demands. Stakeholder concerns surrounding digital transformation have contributed to the adoption of digital knowledge in SCM operations. Digital transformation significantly improves the data analytics and data information systems that a business organization provides to its stakeholders, ultimately determining whether the digital platforms can enhance knowledge, resources, and manpower (Wamba *et al.*, 2017). Therefore, according to Sullivan and Wamba (2022), AI is a tool for resilience in firm strategies to rethink SCM as a response to disruptive events; in other words, AI supports the identification of the organizational resources that enable supply chain redesign during disruption management. Consequently, keeping operating processes running improves performance, as these processes are the pillars for the creation of knowledge from AI in the supply chain. This calls for firms to design business models from the perspective of resilience and its supply chain linkages because AI facilitates efficient disruption management and increases performance in the UN's SDGs. Moreover, artificial knowledge should lead to an improvement in SCM accountability. However, despite the enormous attention given to digital technology and knowledge management in the SCM literature (Capestro and Kinkel, 2020; Kamble *et al.*, 2020; Tönnessen and Teuteberg, 2020; Wamba and Queiroz, 2020), scholars have provided scant and inconclusive information on artificial knowledge's implications for future industries, as well as its influences on accountability, traceability, and fraud prevention.

From the resilience perspective, the UN 2030 Agenda does not only encourage firms to invest in artificial knowledge, digitalization, and innovation for long-term planning, but also

fosters the resilience business model to enable the greater participation of concerned stakeholders (Tortorella *et al.*, 2023). Stakeholder participation will improve firms' resilience business model and digital platforms, as stakeholders would enforce better management strategies and supervise resilience levels in high-risk events (Nica, 2019). Hence, a resilience business model often corresponds to the number of business partners involved and can enhance firms' sustainable performance, network flexibility, and coping ability against various market fluctuations (Belhadi *et al.*, 2022).

Various approaches have outlined, through different theoretical lenses, how to understand artificial knowledge's role in the development of the resilience business model and how artificial knowledge and digitalization contribute to better sustainable performance (see Figure 1). For example, institutional theory explains the relationship of artificial knowledge with the resilience business model by stating that the use of modern digitalization addresses stakeholder concerns and responds to external pressure. Specifically, artificial knowledge is one of the various innovative channels organizations use to modify the institutional frameworks that transform and promote digital platforms (Bag *et al.*, 2021; Hinings *et al.*, 2018). Institutional theory has a sociology aspect, wherein legitimacy basically defines managerial decisions. On the other hand, its economic aspect asserts firms' desire to accomplish isomorphism by increasing productivity.

The literature has also discussed the prominent role of accountability in attaining a competitive advantage when it is fully integrated into a firm's operations in a unique and irreplaceable manner (Barney, 1991; Kozanoglu and Abedin, 2020). According to Logsdon and Lewellyn (2000), stakeholder accountability can be a key success factor for the corporate accountability process. Correspondingly, the legitimacy theory argues that objectionable and inappropriate accountability behavior is exposed by larger legitimacy forces and creates incentives to improve sustainable performance (Cormier and Magnan, 2015). The literature on sustainable business legitimacy recommends that the achievement of legitimacy be based entirely on the beneficial results of accountability (Tilling, 2004) and explicit moral discourse on a firm's acceptability. Finally, based on legitimacy theory, Mobus (2005) stated that those organizations that conduct their accountability practices in accordance with social values and norms achieve greater legitimacy.

Methodology

As opposed to a narrative review, the approach we used to analyze the relevant literature in this study was the SLR, which utilizes a scientific, transparent, repeatable procedure

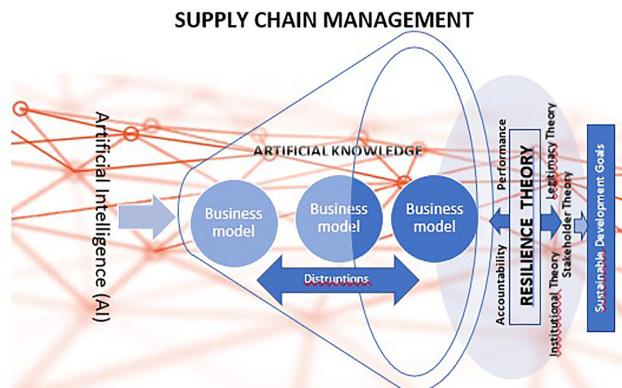


Figure 1.
Theoretical framework
on artificial knowledge
in the resilience
perspective

(Treanfield *et al.*, 2003; Snyder, 2019). It is also a well-established approach in SCM research (Durach *et al.*, 2017; Snyder, 2019; Donthu *et al.*, 2021; Lim *et al.*, 2022). The SLR enables the systematization and classification of key findings in the research area, emphasizing unknown characteristics so as to develop directions for future research (Kraus *et al.*, 2022; Martins *et al.*, 2019; Paul *et al.*, 2021; Di Vaio *et al.*, 2022b). The advantages of SLR analysis include: better result quality (Christofi *et al.*, 2017); minimization of distortions (Dada, 2018); greater validity and replicability (Wang and Chugh, 2014); a clearer roadmap for the field under study (Kauppi *et al.*, 2018); and the prediction of various factors that build a novel conceptual framework as future research agenda (Dada, 2018; Lim *et al.*, 2022). Specifically, our SLR analysis progresses the research fields of artificial knowledge, digitization, and the accountability-based business model (Donthu *et al.*, 2021).

The methodology of this study consisted of two distinct research phases: a) identifying, reading, and interpreting pertinent publications; and b) performing a bibliometric evaluation of the selected papers. In line with the procedure recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method, we conducted four steps in the initial phase. They were: (1) the identification of published papers from repositories; (2) the screening of the papers; (3) the selection of relevant papers based on eligibility; and (4) the finalization and inclusion of the papers for analysis. Figure 2 illustrates the data collection and analysis procedure followed at each level of this study to ensure a trustworthy methodology.

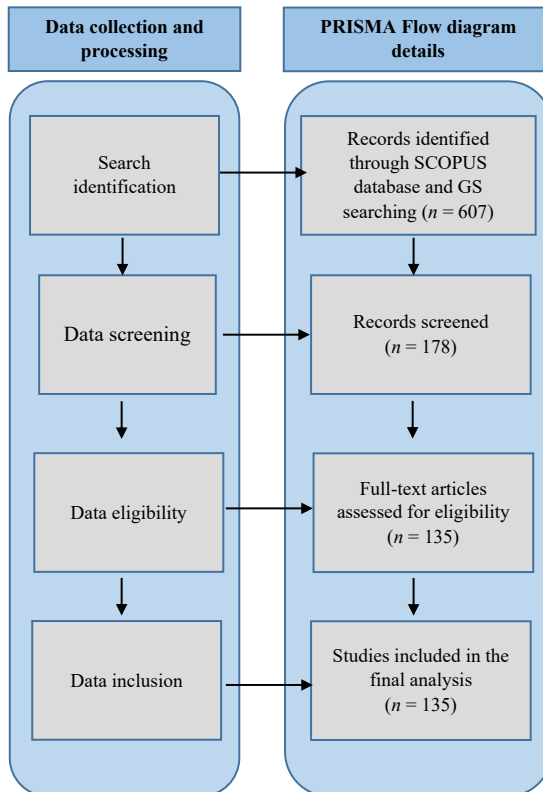


Figure 2.
Research design and
methodology

We began with the database selection in the first phase. In accordance with Fink (2019), the selection procedure culminated with choosing the Scopus and Google Scholar databases. Scopus is the most comprehensive abstract and citation database available to scholars, government institutions, and business organizations (Fahim and Mahadi, 2022). It has over 1.8 billion cited sources from as far back as the 1970s. It encompasses 84 million records from seven thousand publishers, 17.6 million author profiles, and nearly ninety-five thousand affiliation profiles. It is also useful on account of its h-index, a score that reflects the quality of an article, author, or journal. We opted to combine the results of our Scopus database search with that of our manual search on the Google Scholar site to improve the scope of the selected topic, since Scopus has greater coverage compared to the Web of Science (WoS) database. Previous researchers have also used a similar strategy (see Di Vaio *et al.*, 2022c).

To collect all the works on artificial knowledge, SCM digitalization, and accountability, we picked a broad period of study spanning over 30 years from 1990 to 2022. However, the database search revealed that the initial article on this topic was only published in 2004 (see the following section for more details on the year-wise publication record). Furthermore, to discover all relevant papers, we executed numerous search queries via shortened (truncated) associations between nine search string categories, as mentioned below:

- (1) Group 1: artificial knowledge AND digitalization AND SCM
- (2) Group 2: digital transformation AND resilience AND SC
- (3) Group 3: artificial knowledge AND digitalization AND SCM AND accountability
- (4) Group 4: artificial knowledge AND digitalization AND SCM AND accountability AND sustainable performance
- (5) Group 5: digital transformation AND resilience AND SCM AND accountability
- (6) Group 6: digital transformation AND resilience AND SCM AND sustainable performance

Following earlier works (e.g. Di Vaio *et al.*, 2022b), the selection of relevant publications focused on the above-combined categories to highlight probable connections between the results obtained in the six groups, rather than discarding notable contributions to the problem being examined. The specific keywords used in the first stage in combination with the research theme included “artificial knowledge”, “digitalization”, “supply chain management (SCM)”, “digital transformation”, “resilience”, “accountability” and “sustainable performance”. Digitalization was often inserted in the search since it was the focal point of our study. By searching for these terms in the articles’ title, abstract, or keywords, the linkages between SCM digitalization, accountability, and sustainable performance were identified. The initial keyword exploration yielded 607 articles, which were then filtered for journal papers in the English language on the selected research topics (e.g. social sciences, computer sciences, business management, and decision sciences). This reduced the number of articles to 178.

In the second stage, relevant publications were chosen based on our research criteria and content analysis of the articles’ abstracts. Closely analyzing the abstracts’ content enabled us to arrange the data in a repeatable fashion, and subsequently, emphasize the relevance of each article to the themes presented in our study. Taking into account the possibility that the Scopus database does not contain all existing articles pertaining to this study, we also manually searched for articles on Google Scholar, employing identical search parameters to explore prominent journals known to publish articles on artificial knowledge in SCM digitalization, accountability, and sustainable performance measures. Specifically, we focused on journals such as *Annals of Operations Research*, *International Journal of Productivity and Performance*

Management, Journal of Enterprise Information Management, Supply Chain Management, Journal of Business Research, and International Journal of Supply Chain Management to avoid any exclusion of papers relevant to our study's objectives.

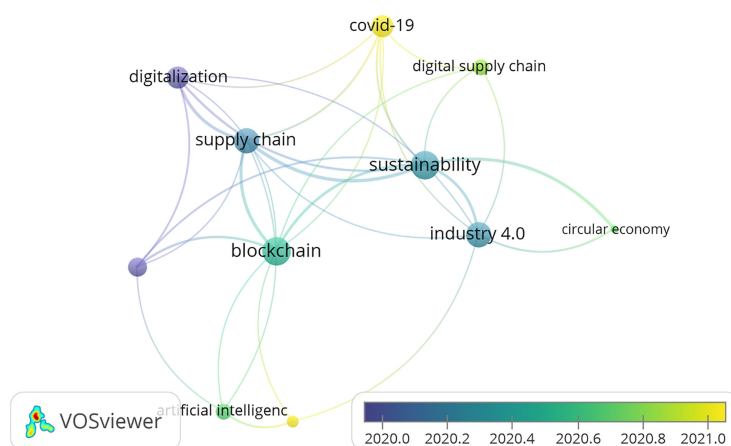
The final phase of this study centered around each scholarly work, wherein we thoroughly examined every paper to determine important areas related to the themes under study. We reviewed our data and removed duplications and extraneous articles, yielding a final list of 135 articles (see [Appendix](#) for summary of selected articles). Then, we began performing the various parts of the SLR by feeding the final article list into the VOSviewer software (version 1.6.18), a free computer program used to create, visualize, and explore network data maps ([Van Eck and Waltman, 2017](#)). The development of a mapped representation of bibliographic data in the VOSviewer facilitates a broader and more exact comprehension of the impacts of the research topics ([Di Vaio et al., 2022c](#)). Moreover, in its 2014 update, the VOSviewer incorporated extensive text-mining capabilities, using which two-dimensional term maps can be generated from a collection of texts to reflect terms' relationships based on location and distance. Notably, the correlations between terms are defined by their co-occurrence in the articles ([Van Eck and Waltman, 2017](#)). Additionally, to support citation analysis, Harzing's "Publish or Perish" (POP) software was utilized in this study. It is, again, a free software that allows users to retrieve and analyze academic citations ([Jacsó, 2009](#)). The findings of the analyses described above are detailed in the following section.

Results

Bibliometrics was utilized to conduct advanced statistical and graphical categorized tests that summarized the articles' data and highlighted its spatio-temporal aspects. Indeed, bibliometric analysis results in more trustworthy and systematic results about a chosen topic without the possibility of neglecting prior works ([Di Vaio et al., 2022c](#)).

Keyword analysis

Using the bibliometric analysis, we produced a conceptual map depicting the interrelatedness among the keywords included in the database search. The overlay depiction of the keywords, as categorized by color matching, is shown in [Figure 3](#). The figure displays the color



Note(s): Unit of analysis = author keywords, Counting method: Full counting, Minimum number of occurrences of keywords = 5

Figure 3.
Overlay visualization
of cooccurrence of
keywords

relationships, which are calculated as the frequency index of word recurrence throughout time. It is noteworthy that the terms “sustainability”, “supply chain”, and “industry 4.0 model” are correlated in terms of their color correspondence. Similar linkages can be seen between “SCM and digitalization”. Unsurprisingly, “COVID-19” emerged as an independent, commonly used keyword in the relatively recent literature.

Table 1 lists the most popular keywords used by previous authors. The statistics showed that “Blockchain” (n = 22, 4.31%), “sustainability” (n = 21, 4.11%), “supply chain” (n = 19, 3.72%), “SCM” (n = 16, 3.13%), “COVID-19” (n = 12, 2.35%), and “industry 4.0” (n = 12, 2.35%) are the top six terms.

Publication years

The publishing history of the articles on the chosen topics from January 2004 to June 2022 is depicted in Figure 4. Only four papers were published between 2004 and 2016, with one each in 2004, 2006, 2010, and 2014. As a result, the identified publications in this subject area over the past decade represent somewhat less than 3% of the overall articles published in the area (see Table 2). Since 2017, the number of articles published on AI, digitalization, supply chains, and accountability has steadily increased. This demonstrates academics’ growing global interest in AI, digitalization, supply chain, and accountability research. The number of papers published in this field reached a peak in 2021. The two-year moving average plotted in the dashed line in Figure 3, on the other hand, indicates that more articles will be published in

Keyword	Frequency	%
Blockchain	22	4.31
Sustainability	21	4.11
Supply chain	19	3.72
Supply chain management	16	3.13
Covid-19	12	2.35
Industry 4.0	12	2.35
Circular economy	10	1.96
Digitalization	10	1.96
Artificial intelligence	9	1.76
Digital supply chain	5	0.98
Technology adoption	5	0.98

Note(s): Total number of keywords = 511

Table 1.
Frequently used
keywords

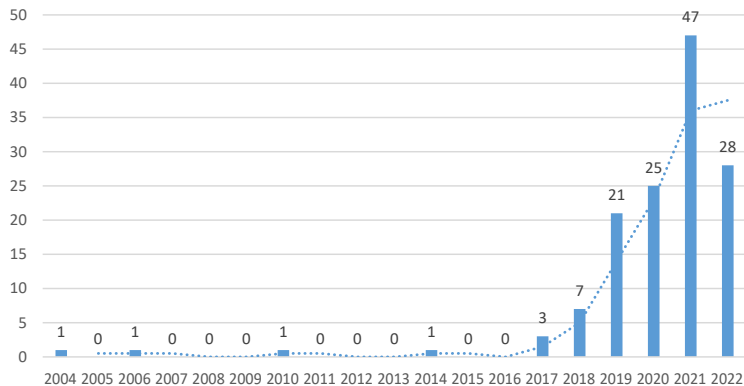


Figure 4.
Growth in publications

Year	Frequency	% (N = 135)	Cum. Percent. (%)
2004	1	0.74	0.74
2005	0	0.00	0.74
2006	1	0.74	1.48
2007	0	0.00	1.48
2008	0	0.00	1.48
2009	0	0.00	1.48
2010	1	0.74	2.22
2011	0	0.00	2.22
2012	0	0.00	2.22
2013	0	0.00	2.22
2014	1	0.74	2.96
2015	0	0.00	2.96
2016	0	0.00	2.96
2017	3	2.22	5.19
2018	7	5.19	10.37
2019	21	15.56	25.93
2020	25	18.52	44.44
2021	47	34.81	79.26
2022 (June)	28	20.74	100.00
Total	135	100.00	

Digitalization and artificial knowledge

Table 2.
Publications by the year

2022 than 2021, contributing to the continuation of the increasing trend seen since 2017. Table 2 contains the whole year-by-year list of articles.

Publication journals

Table 3 lists journals that have published at least two articles. In this category, the famous journals were as follows: *International Journal of Supply Chain Management*, *Annals of Operations Research*, *International Journal of Productivity and Performance Management*, and *Journal of Enterprise Information Management*. The analysis of these journals, as seen in Table 3, suggests that most of the published articles were concentrated in operations management and SCM journals.

Conversely, as per Table 3, more than 51% of the papers have been published in various other journals from different disciplines. The Appendix shows the complete list of these journals. This is indicative of the diversity of journals in which SCM digitalization and accountability papers have been published.

Publication subject areas

Table 4 categorizes the publications based on their broad subject areas. Evidently, the “Business, Management and Accounting” subject area has witnessed the highest number of publications, followed by the “Computer Science” and “Decision Sciences” subject areas. The variety of journals and their subject areas indicate the diversity of the functional disciplines these publications come from.

More specifically, the selected journal papers have addressed a range of topics, including the sustainability of logistics (Rahman *et al.*, 2019), development of virtual relations (Ukolov *et al.*, 2019), digital SCM and development (Afanasyev *et al.*, 2019), digital economy development (Kartskhiya *et al.*, 2020), digitalization of energy manufacture (Afanasyev *et al.*, 2019), sustainable supply chain finance (Reza-Gharehbagh *et al.*, 2022b), AI and blockchain adoption (Chatterjee *et al.*, 2021; Vafadarnikjoo *et al.*, 2021; Grover, 2022), AI-driven innovation (Belhadi *et al.*, 2021), sustainable trade promotion (Wu *et al.*, 2020), epidemic

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Journal	Frequency	%
<i>International Journal of Supply Chain Management</i>	10	7.41
<i>Annals of Operations Research</i>	8	5.93
<i>International Journal of Productivity and Performance Management</i>	5	3.70
<i>Journal of Enterprise Information Management</i>	5	3.70
<i>Supply Chain Management</i>	4	2.96
<i>International Journal of Logistics Management</i>	3	2.22
<i>Journal of Business Research</i>	3	2.22
<i>TQM Journal</i>	3	2.22
<i>Uncertain Supply Chain Management</i>	3	2.22
<i>Business Horizons</i>	2	1.48
<i>Economics, Management, and Financial Markets</i>	2	1.48
<i>Future Internet</i>	2	1.48
<i>International Journal of Operations and Production Management</i>	2	1.48
<i>International Journal of Physical Distribution and Logistics Management</i>	2	1.48
<i>Journal of Self-Governance and Management Economics</i>	2	1.48
<i>Logforum</i>	2	1.48
<i>Problems and Perspectives in Management</i>	2	1.48
<i>Security and Communication Networks</i>	2	1.48
<i>Supply Chain Forum</i>	2	1.48
<i>Technology in Society</i>	2	1.48
Other	69	51.11
Total	135	100.00

Table 3. Journals with the highest number of articles published

Subject area	Documents*
Arts and Humanities	5
Business, Management and Accounting	94
Computer Science	34
Decision Sciences	49
Economics, Econometrics and Finance	17
Energy	2
Multidisciplinary	2
Social Sciences	36

Note(s): *As some papers have been categorized into several subject areas, the total number of papers here exceeds the number selected for the analysis

Table 4. Subject areas of publications

outbreaks in supply chains (Queiroz *et al.*, 2020), and the circular economy of industry 4.0 (Lopes de Sousa Jabbour *et al.*, 2018).

Publication distribution by geography

The percentages of publication contributions by country are displayed in Table 5. With 23 publications (16.55%), the United States tops the list, followed by India with 22 publications (15.83%). This finding shows that the early epicenters of SCM digitalization research were the United States and India. Unexpectedly, Australia comes in eighth place (n = 7, 5.04%), deviating from the findings of Di Vaio *et al.*'s (2022c) SLR on the contribution of blockchain technology to gender equality, in which Australia was ranked second. The United States has a strong growth rate and promotes digitization, supply chain, AI, and accountability thanks to the government's effective efforts in these areas (Thylin and Duarte, 2019; Di Vaio *et al.*, 2022a). To ascertain the drivers of the growing digitization of the United States, an extensive study on AI, digitalization, supply chains, and accountability is being carried out.

Country/Territory	Frequency	%
United States	23	16.55
India	22	15.83
United Kingdom	18	12.95
China	15	10.79
France	15	10.79
Italy	14	10.07
Russian Federation	09	8.63
Australia	7	5.04
Iran	7	5.04
Spain	6	4.32
Total	135*	100

Table 5. Countries contributing to the publications

Note(s): * This total number differs from the number of papers selected in the study as some authors have indicated dual countries as their affiliation

Table 5, on the other hand, reveals that the publications come from just 10 different nations. This statistic draws attention to the fact that most research in this area is concentrated in a few countries, underscoring the necessity of studies with a larger geographic scope to depict the global picture of supply chain digitalization and accountability. On the world map, Figure 5 illustrates the geographical spread of these nations. Interestingly, there appears to be no research from the continents of South America or Africa. The countries in these continents are a part of the lower tiers of many global supply chains. Unfortunately, most of these nations are the ones that fall behind in terms of accountability and digitalization; the paucity of publications resonates the same shortcoming. The map also shows that Asia dominates this field of study.

Publication authorship

The foremost prolific authors in the domains of AI, digitalization, supply chains, and accountability are listed in Table 6. With three publications apiece, Joshi S (India), Kumar A (United Kingdom), and Sharma M.R. (United Kingdom) lead the list. Belhadi A., Gunasekaran A., Kumar M., Tsolakis N., and Mani V. are also active authors, each with two articles and

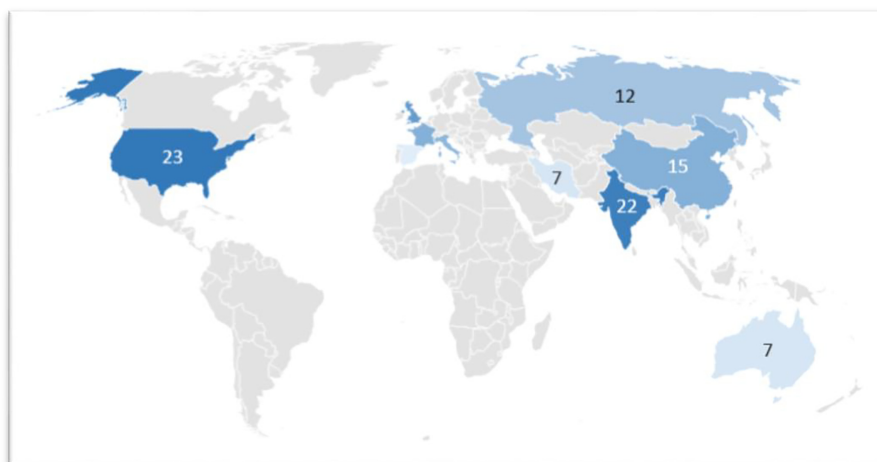


Figure 5. Top countries by publications

Author	No. of documents	Citations	%
Joshi S.	3	28	0.71
Kumar A.	3	91	0.71
Sharma M.	3	28	0.71
Belhadi A.	2	30	0.47
Di Paola N.	2	0	0.47
Gunasekaran A.	2	44	0.47
Hafezalkotob A.	2	0	0.47
Khan S.A.R.	2	29	0.47
Kumar M.	2	35	0.47
Kumar S.	2	5	0.47
Makui A.	2	0	0.47
Narkhede B.E.	2	6	0.47
Narwane V.S.	2	6	0.47
Oguntegbe K.F.	2	0	0.47
Raut R.D.	2	6	0.47
Reza-Gharehbagh	2	0	0.47
Tsolakis N.	2	31	0.47
Ukolov V.F.	2	6	0.47
Mani V.	2	30	0.47
Vona R.	2	0	0.47

Table 6.
Top twenty authors

Note(s): Total Number of authors = 422

more than 30 citations. It is noteworthy that these authors represent a variety of genders and are from both developed and developing nations.
Academic cooperation is essential for the advancement of any subject; hence, increased international collaboration is necessary (Turner and Baker, 2020). Figures 6 and 7

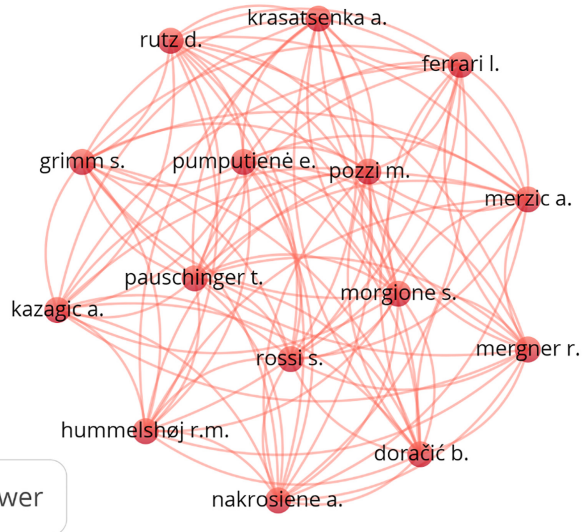


Figure 6.
Network visualization map of the co-authorship

Note(s): Unit of analysis = Authors, Counting method: Full counting, Minimum number of documents of an author = 1, Minimum number of citations of an author = 0

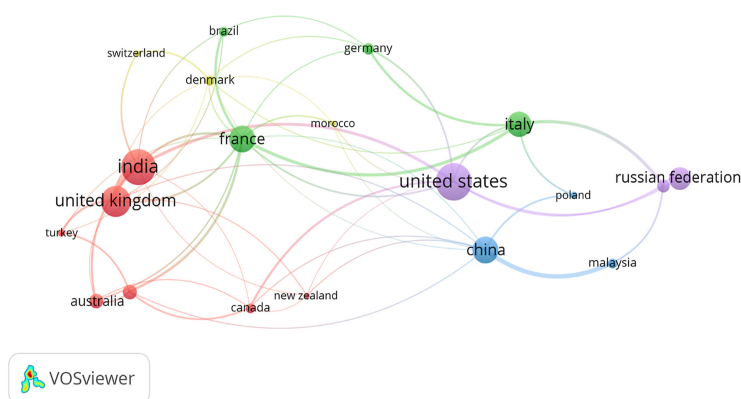


Figure 7.
Network visualization
map of the
co-authorship

Note(s): Unit of analysis = Countries, Counting method: Full counting, Minimum number of documents of a country = 3, Minimum number of citations of a country = 5

demonstrate the level of interaction among academics using nations and individual scholars as units of analysis. The United States, India, the United Kingdom, and the Russian Federation are the nations with the highest authority in collaborative projects. It is also interesting to note the significant collaborative publications between India and the United Kingdom due to the network between several key researchers, namely Joshi S (India), Kumar A (United Kingdom), and Sharma M.R. (United Kingdom). This study thus reveals that a strong network of collaboration exists across all continents. Individually, the most prominent writers are Pumputiene, E., Pozzi, M., Pauschinger, T., Morgione, S., and Rossi, S., who have collaborated on multiple publications.

In research in general, increasing collaboration among scholars from various countries is observed. Cultural affinities, language, and geographical location, are all determinants and drivers of co-authorship decisions (Di Vaio *et al.*, 2022a). It is revealed that not only do the United States and the United Kingdom publish more research articles, but their academics also work more successfully with their peers in other countries. Perhaps, this success is related to the national emphasis on digitization and accountability in these countries.

Author affiliations

Table 7 lists the top institutions that have published at least three articles on AI, digitalization, supply chains, and accountability. Four articles have been contributed by the Università degli Studi di Napoli Federico II in Italy and the Montpellier Business School in France.

Figure 8 depicts a network visualization map of the affiliation of co-authors. The most active institutions in this field of study are the Montpellier Business School in France and Cadi Ayyad University in Morocco.

Citation analysis

Citations are used in research assessment to show how much a publication has drawn on other publications' ideas, research, and content. As a result, the impact of a study is determined by the number of citations it attains (Bornmann and Daniel, 2007). Table 8 shows the most frequently cited scholars and articles. The study entitled "*Firm performance impacts*

Affiliation	Documents	%
Università degli Studi di Napoli Federico II	4	2.60
Montpellier Business School	4	2.60
London Metropolitan University	3	1.95
Universitat Politècnica de València	3	1.95
The State University of Management	3	1.95
RUDN University	3	1.95
National Institute of Industrial Engineering	3	1.95
University of Cambridge	3	1.95
Islamic Azad University	3	1.95
Indian Institute of Technology Delhi	3	1.95
Montpellier Recherche en Management MRM	3	1.95
TBS Business School	3	1.95
Doon University	3	1.95

Note(s): Total number of institutes = 154

Table 7.
Top affiliations

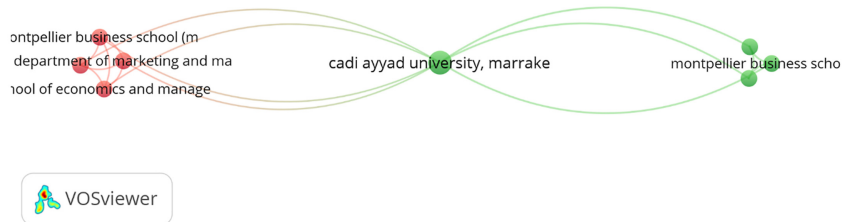


Figure 8.
Network visualization map of the co-authors' affiliation

Note(s): Unit of analysis = Institutes, Counting method: Full counting, Minimum number of documents of an institute = 1, Minimum number of citations of an institute = 5

of digitally enabled supply chain integration capabilities” authored by Rai *et al.* (2006) received the most citations in the selected database. Lopes de Sousa Jabbour *et al.’s* (2018) published work titled “Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations” is the second most prominent article. The last column of Table 8 indicates that the quantity of citations generated every year by the “Publish or Perish” program is based on citation numbers from Google Scholar. Accordingly, based on Table 8, the most prominent paper by citation number is Queiroz *et al.’s* (2020) “Impacts of epidemic outbreaks on supply chains: mapping a research agenda amid the COVID-19 pandemic through a structured literature review.” The prominence of the study is mainly because of its highlight attribution (COVID-19 pandemic) and nature (literature review).

Textual content analysis

VOSviewer provides a valuable tool to cluster selected publications and analyze the resulting clusters in aggregated graphical form (Van Eck and Waltman, 2017). Accordingly, it enables researchers to identify significant keywords in articles within a cluster, as well as the co-occurrence frequency among them. According to Bornmann *et al.* (2018), nodes in the co-occurrence map show the correlations between two terms. Following Di Vaio *et al.* (2022b), in this study, we selected 16 keywords (specifying the minimum number of keyword occurrences to six) and assessed the intensity of co-occurrence links with other keywords. Subsequently, we identified two separate clusters, distinguished by color in green and purple, respectively.

No.	Authors	Title	Year	Source title	Scopus	Citations Google Scholar (GS)	Citations per year (Based on GS)
1	Rai A., Patnayakuni R., Seth N.	Firm performance impacts of digitally enabled supply chain integration capabilities	2006	<i>MIS Quarterly: Management Information Systems</i>	1,241	2,280	142.5
2	Lopes de Sousa Jabbour A.B., Jabbour C.J.C., Godinho Filho M., Roubaud D.	Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations	2018	<i>Annals of Operations Research</i>	394	601	150.25
3	Queiroz M.M., Ivanov D., Dolgui A., Fosso Wamba S.	Impacts of epidemic outbreaks on supply chains: mapping a research agenda amid the COVID-19 pandemic through a structured literature review	2020	<i>Annals of Operations Research</i>	260	435	217.5
4	Lu Q., Xu X.	Adaptable Blockchain-Based Systems: A Case Study for Product Traceability	2017	<i>IEEE Software</i>	249	393	78.6
5	Cole R., Stevenson M., Aitken J.	Blockchain technology: implications for operations and supply chain management	2019	<i>Supply Chain Management</i>	200	336	112
6	Holmström J., Partanen J.	Digital manufacturing-driven transformations of service supply chains for complex products	2014	<i>Supply Chain Management</i>	155	241	30.13

Digitalization and artificial knowledge

(continued) **Table 8.**
Highly cited articles

No.	Authors	Title	Year	Source title	Scopus	Citations Google Scholar (GS)	Citations per year (Based on GS)
7	Wong L.-W., Leong L.-Y., Hew J.-J., Tan G.W.-H., Ooi K.-B.	Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs	2020	<i>International Journal of Information Management</i>	146	244	122
8	Garcia-Muiña F.E., González-Sánchez R., Ferrari A.M., Settembre-Blundo D.	The paradigms of Industry 4.0 and circular economy as enabling drivers for the competitiveness of businesses and territories: The case of an Italian ceramic tiles manufacturing company	2018	<i>Social Sciences</i>	92	133	33.25
9	Kumar A., Liu R., Shan Z.	Is Blockchain a Silver Bullet for Supply Chain Management? Technical Challenges and Research Opportunities	2020	<i>Decision Sciences</i>	73	141	70.5
10	Del Giudice M., Chierici R., Mazzucchelli A., Fiano F.	Supply chain management in the era of circular economy: the moderating effect of big data	2020	<i>International Journal of Logistics Management</i>	50	68	34
11	Grover P., Kar A.K., Dwivedi Y.K.	Understanding artificial intelligence adoption in operations management: insights from the review of academic literature and social media discussions	2022	<i>Annals of Operations Research</i>	46	95	47.5

Table 8.

(continued)

No.	Authors	Title	Year	Source title	Scopus	Citations Google Scholar (GS)	Citations per year (Based on GS)
12	Hartley J.L., Sawaya W.J.	Tortoise, not the hare: Digital transformation of supply chain business processes	2019	<i>Business Horizons</i>	46	88	29.33
13	Misra N.N., Dixit Y., Al-Mallahi A., Bhullar M.S., Upadhyay R., Martynenko A.	IoT, Big Data, and Artificial Intelligence in Agriculture and Food Industry	2022	<i>IEEE Internet of Things Journal</i>	43	92	46
14	Barykin S.Y., Kapustina I.V., Sergeev S.M., Kalinina O.V., Vilken V.V., de la Poza E., Putikhin Y.Y., Volkova L.V.	Developing the physical distribution digital twin model within the trade network	2021	<i>Academy of Strategic Management Journal</i>	43	50	50
15	Yang K., Shi Y., Zhou Y., Yang Z., Fu L., Chen W.	Federated Machine Learning for Intelligent IoT via Reconfigurable Intelligent Surface	2020	<i>IEEE Network</i>	39	62	31
16	Gupta S., Modgil S., Gunasekaran A., Bag S.	Dynamic capabilities and institutional theories for Industry 4.0 and digital supply chain	2020	<i>Supply Chain Forum</i>	39	55	27.5
17	Sahebi I.G., Masoomi B., Ghorbani S.	Expert oriented approach for analyzing the blockchain adoption barriers in humanitarian supply chain	2020	<i>Technology in Society</i>	32	45	22.5
18	Tsolakis N., Niedenzu D., Simonetto M., Dora M., Kumar M.	Supply network design to address United Nations Sustainable Development Goals: A case study of blockchain implementation in Thai fish industry	2021	<i>Journal of Business Research</i>	31	56	56

(continued)

Table 8.

No.	Authors	Title	Year	Source title	Scopus Citations	Google Scholar (GS)	Citations per year (Based on GS)
19	Rymarczyk J.	Technologies, opportunities and challenges of the industrial revolution 4.0: Theoretical considerations	2020	<i>Entrepreneurial Business and Economics Review</i>	29	45	22.5
20	Tubaro P., Casilli A.A.	Micro-work, artificial intelligence and the automotive industry	2019	<i>Journal of Industrial and Business Economics</i>	27	71	23.67

Table 8. Note(s): The ranking is based on Scopus citations

Figures 9 and 10 depict the co-occurrence of keywords in all fields in a graphical format. The VOSviewer generates different circles and colors upon analyzing terms. Circle size is an indication of how frequently a keyword appears in the selected field, while the space between circles implies the linkage between keywords (i.e. the greater the space, the weaker the connection between the keywords) (Van Eck and Waltman, 2014; Di Vaio et al., 2022b). In our analysis, the software generated five clusters with different colors (i.e. red, blue, green, purple, and yellow) depending on their associations and fields when fractional counting was used (see Figure 9). However, when full counting was used, it generated only four clusters in red, blue, green, and yellow (see Figure 10). Our identification of the two distinct clusters in these

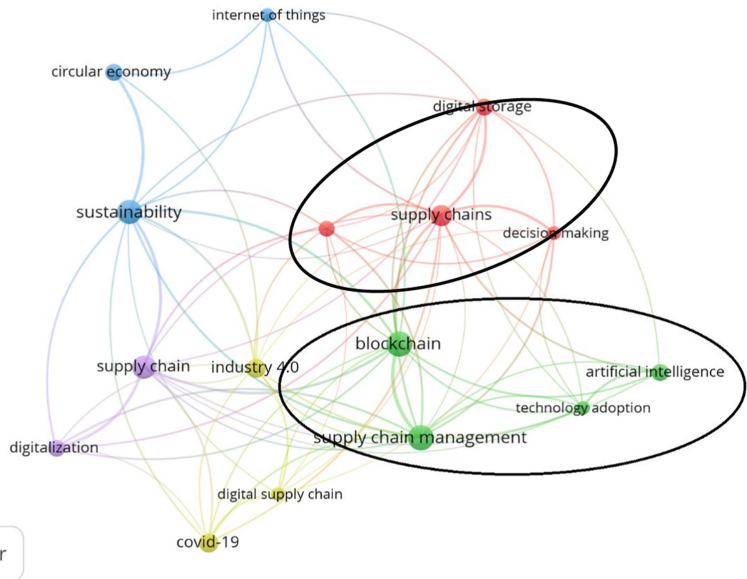


Figure 9. Network visualization of co-occurrence of keywords (based on all fields and fractional counting)

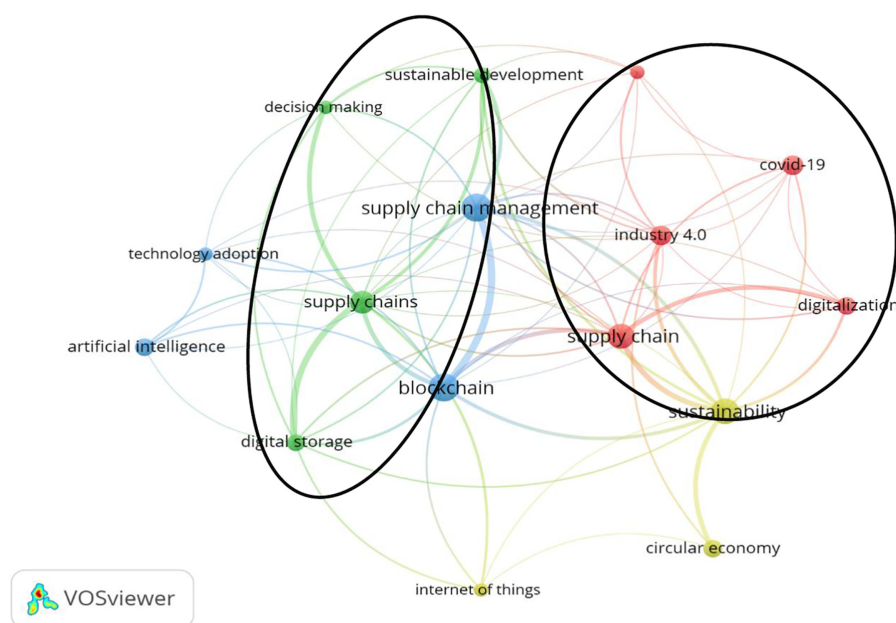


Figure 10.
Network visualization
of co-occurrence of
keywords (based on all
fields and full counting)

figures was based on the highest number identified by the software for each cluster. These figures suggest that in SCM, digitalization and artificial knowledge occur through the adoption of blockchain, AI, and digital storage. These could lead to improved decision-making towards sustainable development. Therefore, governments, policymakers, and business organizations should aim to strengthen the use of advanced digital platforms and technologies to achieve improved accountability and sustainable performance. Moreover, incorporating these technologies can build resilience in the face of unanticipated events that endanger sustainable growth, such as COVID-19, by boosting a company's capacity to predict, adapt, respond, and recover rapidly (Herold *et al.*, 2021).

We performed content analysis of the articles in tabular form, as presented in Appendix. The analysis provided a brief profile of each article in terms of its aims, findings, methodologies, and underpinning theories. Scholars have examined the use of digitalization and artificial knowledge in SCM in various industries, such as food and agriculture, ICT, fashion, logistics, marine, textile, tourism, healthcare, fishing, automotive, pharmaceutical, construction, minerals, mining, and manufacturing (Bechtsis *et al.*, 2017; Cherviakova and Cherviakova, 2018; Garcia-Muiña *et al.*, 2018; Pongpanit and Sornsaruht, 2019; Alharthi *et al.*, 2020; Calvão and Archer, 2021; Chen *et al.*, 2022; Griffin *et al.*, 2022; Joshi and Sharma, 2022; Mahroof *et al.*, 2022; Mishra *et al.*, 2022; Oguntegbe *et al.*, 2022; Shamout *et al.*, 2022; Sharma *et al.*, 2022; Shi *et al.*, 2022), and across multiple levels including SMEs, cities, individuals, the government, and the world (Babenko *et al.*, 2020; Bellingan *et al.*, 2020; Wong *et al.*, 2020; Bagloee *et al.*, 2021; Bisogni *et al.*, 2021; Hjaltadóttir and Hild, 2021; Potocka-Sionek, 2021; Nasir *et al.*, 2022; Nudurupati *et al.*, 2022; Reza-Gharehbagh *et al.*, 2022a).

Discussion

The findings from our analysis highlight the wide interest of scholars in investigating digitalization and AI issues in SCM. Particularly, regarding RQ1 "What is artificial

knowledge in the digitization of SCM?”, our results assert the increasing significance of artificial knowledge and the resulting need to extend the focus of artificial knowledge and digitization research to supply chain operations. Under the theoretical lens of resilience, SCM has to be rethought and transformed from a reactive approach into a proactive approach. Consistent with this, [Sullivan and Wamba \(2022\)](#) found in their research that AI can be firms’ reply to disruptive events like the COVID-19 pandemic. Moreover, based on our analysis results, the progress of the resilience business model highlights the substantial necessity to consider cultural and social outcomes in addition to the financial outcomes of artificial knowledge adoption. From this viewpoint, this study advances existing knowledge on the need to develop a resilience business model for artificial knowledge and digitalization in SCM ([Queiroz and Wamba, 2019](#)).

Additionally, according to the results of this study, the engagement of communities should be included in the strategic rethinking of SCM ([Song et al., 2022](#)). This means that the resilience business model in SCM does not have to be limited to the adoption of AI merely as a response tool to crises to reduce negative impacts on operational performance; rather, AI in SCM resilience should also drive the social pillars of sustainability. The results thus explain that artificial knowledge currently attracts substantial attention not only to achieve economic goals but also to promote the well-being of cultural and social communities.

Apart from being a growing concern, the usage of intelligent systems and advanced digitalization is recognized as a revolutionary way for modern businesses to strengthen artificial knowledge. Indeed, the emergence of digitalization is considered a major contributor to the implementation of artificial knowledge. In this regard, organizations should focus on more advanced digital platforms and engage in an advanced holistic approach that fosters the organizational structure by increasing the reach, precision, and speed of digital platforms and information processing systems ([Soto-Acosta et al., 2018](#); [Wirtz et al., 2019](#)). The establishment of digitalization entities can further result in substantial speed and quality improvements in data analytics and information processing systems, which offers greater access to individuals. Subsequently, by using artificial knowledge effectively and efficiently, organizations can facilitate digital learning and use resources in a better manner.

Regarding the first part of RQ2 “Does the digitalization of SCM increase accountability?”, the results highlight the importance of the resilience business model in the SCM literature by pinpointing accountability as a critical driver of artificial knowledge and digitalization. This encourages organizations to improve their innovation more transparently, thus improving sustainability. The accountability mechanism encourages new investments in artificial knowledge and digital technology-related initiatives to reinforce digital technology implementation in supply chain production systems. It also strengthens the information system at all levels, promotes artificial knowledge in the workforce, and leverages and improves data analysis ([Warner and Wäger, 2019](#)).

The second part of RQ2 “Does the digitalization of SCM increase sustainable performance?” was answered by our analysis, which highlighted the significance of artificial knowledge being promoted by multiple societal actors including institutions, organizations, and civil communities. In addition, artificial knowledge drives the organization towards a sustainable development strategy and provides the digital transformation required to strengthen sustainable business models. It further encourages firms to invest more in technology-oriented development by partnering with other companies, subsequently advancing their sustainable development agenda. Artificial knowledge is also recognized as a key element for businesses that are not only spreading digital transformation, but also transforming digital knowledge into business processes and incorporating digital technologies and novel sustainable solutions to achieve the SDGs. In this regard, artificial knowledge is specifically aimed at bringing digital transformation and ensuring various sustainable business models for supply chain operations. It does so by

serving as a mechanism of production and consumption as well as by promoting digital knowledge in SCM. Fosso Wamba's (2022) study reported on the significance of AI integration in all phases of firms' operational processes to "create and capture" AI value. The results of our study provide another dimension to the value derived from AI, namely artificial knowledge.

While the prior literature affirms that digital transformation is a supporting mechanism for capabilities (Matarazzo *et al.*, 2021; Verhoef *et al.*, 2021), its association with the resilience perspective has been paid scant attention. In line with previous research (Mikalef and Gupta, 2021), our present findings evince the need to prioritize the role of IT capabilities in improving capabilities like culture, management, employees, and infrastructure (Gong and Ribiere, 2021), based on the resilience approach in managing artificial knowledge in SCM. In fact, the role of resilience is key in contributing to the sustainable capabilities of firms. In previous literature, IT capabilities were conceptualized into three dimensions, i.e. infrastructure, business expansion, and proactive stance. However, each of the IT capabilities listed above have rarely been considered from the resilience perspective. If a firm wants to achieve a competitive advantage, IT capabilities must adopt the effective resilience approach to reach a breakthrough. In this regard, opening up to the new avenue of resilience can develop an organization's socio-environmental well-being by advancing artificial knowledge and strengthening IT capabilities (Liebowitz, 2001; Buzko *et al.*, 2016; Jia *et al.*, 2018; Haseeb *et al.*, 2019; Wiesboeck *et al.*, 2020).

Ultimately, this analysis raises interesting perspectives; nonetheless, there remains the matter of identifying a point of interconnection. Digital and sustainable challenges can travel on different tracks; similarly, the varying interests of stakeholders may not coincide with those of the next generation (D'Adamo and Gastaldi, 2022). Indeed, businesses have as their goal the well-being of customers, but also seek to maintain a balance of eco-systems by focusing on resilience as a strength and not as an inability to react to market shocks and changes. Digital knowledge, when combined with human knowledge, can make the internal environment more conciliatory and more responsive to changes in the external environment. The circularity of resources allows for the optimization of the production process (Taddei *et al.*, 2022), and pushes accountability towards green choices that may or may not be recognized by consumers (Liu *et al.*, 2022).

Theoretical implications

Artificial knowledge is applied in several different sectors with different user intensities, such as AI-based systems, knowledge-based IT systems, and intelligent executive systems. In today's modern digital world, artificial knowledge has risen as a favorable and popular form of digital transformation, helping organizations promote advanced algorithms and Big Data analytics. As we concluded, the use of artificial knowledge is attractive as it can affect decision-making abilities and expand IT strategies. Our study elaborates on the role of artificial knowledge and digitalization in SCM to increase accountability and sustainable performance, unfolding aspects of artificial knowledge and digitalization in various ways. First, this study addresses the role of artificial knowledge in the resilience business model in SCM to achieve the UN 2030 Agenda and its SDGs. Second, the current study points out that the accountability mechanism is critical for artificial knowledge and digitalization to facilitate better decision-making, create value, and achieve sustainable performance. Third, it confirms the need for application cases that did not emerge from this analysis (Negri *et al.*, 2021).

Managerial implications

The present study's findings offer valuable information and guidance to supply chain managers. First, the importance of artificial knowledge and digitalization has various

implications for resource selection, employee skill development, and Big Data-oriented culture creation. Specifically, IT leaders and professionals should institute appropriate artificial knowledge and digitalization practices that can shape resource selection strategies within their organizations (Soto-Acosta *et al.*, 2018). Moreover, training for digital transformation and education programs should include cultural change towards accountability in SCM, so as to increase sustainable performance in sustainable and resilient business models. In addition, our findings serve as a guideline for Big Data practitioners by emphasizing that building artificial knowledge and digitalization to fulfill various demands requires not only financial investments but also adequate intangible assets such as time, effort, and human skills. Perhaps the most significant result of this research is the useful insight into artificial knowledge's dynamic role in decision-making. Consequently, all efforts should be put towards responsible and ethical AI governance and its benefits to improve firm performance (Papagiannidis *et al.*, 2022). Our study has looked into scholars' and practitioners' perceptions of artificial knowledge and digitalization to make better decisions in SCM operations. Hence, this study provides a new awareness of artificial knowledge and digitalization, extending prior research that has mainly presented organizations' application of strategies and techniques for new technologies. Moreover, this study points out how the digital transition cannot transcend the sustainable transition in enforcing suitable solutions to external changes.

Policy implications

Artificial knowledge can play a critical role in policymaking. In developing an effective digital KMS to achieve resilient and sustainable business models in SCM, policymakers should focus on critical technology drivers that forecast cultural drift. In doing so, policymakers and practitioners should establish the missing link of "effective technology-oriented policies" to promote digital KMSs whose goals are aligned with AI technology and the UN 2030 Agenda. It is relevant for policymakers to design the latest models of AI technology which can provide daily updates in addressing digital challenges with minimal resources. Finally, the use of public funds should reward territorial realities of excellence that identify the models to be emulated, such that replicability is made possible.

Future research directions and recommendations

The literature has mainly scrutinized the relevance of artificial knowledge and digitalization with the aim of exploring how organizations can improve the accountability process and succeed in achieving sustainable SCM performance. Based on our SLR in this paper, we offer the following propositions (see Figure 11):

Proposition P1. Artificial knowledge in digitalization improves SCM operations.

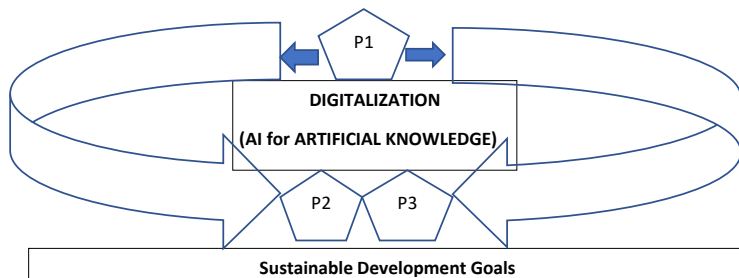


Figure 11.
A conceptual framework of artificial knowledge and digitalization for accountability and sustainable performance measures in the resilient SCM

Scholars have addressed the need to explore and implement artificial knowledge and digitalization as an agenda for improving SCM operations (Sambasivan *et al.*, 2009; Samuel *et al.*, 2011; Gansser and Reich, 2021; Del Giudice *et al.*, 2023; Chen *et al.*, 2022; Liu *et al.*, 2013). Nonetheless, the role of artificial knowledge in SCM operations has not been sufficiently addressed (Gold and Heikkurinen, 2018). Furthermore, various studies have neglected to examine the impact of artificial knowledge with regard to the digitalization of SCM operations (Chen *et al.*, 2022). Therefore, it is beneficial for future research to pay attention to artificial knowledge in the digitalization of SCM operations. In addition, multiple knowledge discovery approaches, such as AI-related methods, can detect linkages and trends in knowledge databases for the creation of new digital information in SCM operations. To promote digital knowledge, various taxonomies and new learning maps are often formed as strong foundations for the development of such databases. The implementation of artificial knowledge in the field of SCM helps encode digital information in KMSs. Multiple AI approaches, such as intelligent agents, are in fact applicable to support knowledge search and retrieval techniques in KMSs.

Proposition P2. Digitalization in SCM increases accountability measures.

This proposition on SCM digitalization and accountability was proffered based on studies that explain digitalization in SCM and in response to our RQ2. Multiple studies have highlighted the significance of digitalization in SCM, particularly in innovating various accountability mechanisms and changing conventional accountability frameworks into more transparent and sustainable ones. By adapting advanced technologies, SCM operations gain improved traceability and value chains, which achieve better accountability. According to Logsdon and Lewellyn (2000), digitalization can be a key success factor for the accountability process. Furthermore, digitalization has exposed questionable and inappropriate accountability behaviors through broader legitimacy forces and created incentives to improve accountability mechanisms. The literature recommends that the achievement of the accountability mechanism is based entirely on the beneficial results of digitization (Tilling, 2004) as well as the explicit moral discourse on the acceptability of any company. Also, with regards to SCM operations, organizations that promote digitalization platforms in accordance with social values and norms should achieve greater accountability. This can be accomplished by enriching and augmenting organizational knowledge (Harfouche *et al.*, 2022) and assigning greater importance to behavioral considerations (Pournader *et al.*, 2021).

Proposition P3. Digitalization in SCM increases sustainable performance measures.

Our final proposition also answers RQ2 and is driven by research on the way digitalization facilitates the assimilation of resilient and sustainable business models in SCM towards achieving the SDGs. Currently, SCM is under increasing pressure from stakeholders to counter digital challenges and improve business operations by addressing digitalization so that superior sustainable performance can be achieved (Joyce and Paquin, 2016). By enabling digitalization to advance in SCM, for example through AI, new digital knowledge can be created based on the identification of trends and linkages in knowledge databases. In turn, the various taxonomies and new knowledge maps formed to promote digital knowledge in such databases act as the foundations for the construction of a sustainable organization. Implementing artificial knowledge in SCM encodes digitization and supports SCM's knowledge promotion and recovery methods for sustainable performance. Notably, this can be achieved if shared value is associated with all stakeholders (Appolloni *et al.*, 2022).

Concluding remarks

Artificial knowledge and digitization drive incredible transformations in SCM by driving new ways and best practices for organizations to interact with various digital platforms.

When promoted and shared, artificial knowledge and digitization can yield substantial benefits alongside digital information interpreted within the network. This study highlights that if well applied, artificial knowledge can also achieve the UN's SDGs by strengthening decision-making and accountability. From here, the first limitation of this work emerges; given that it is an SLR, there is a need to verify the propositions put forth in this study with actual application cases.

Taking into account the converging characteristics of artificial knowledge and digitization in various bodies of academic literature, this study systematically reviewed 135 articles that have analyzed these concepts in the SCM context, as well as the accountability process that can strengthen digital platforms to meet the UN 2030 Agenda. Artificial knowledge and digitization research within SCM provide a detailed description of the present condition of the SCM field and highlight the main critical challenges facing the world today. Artificial knowledge and digitization aim to improve various accountability measures and suggest new business practices to achieve sustainable performance. Studies on these two concepts discuss the current state of digital technological developments and highlight the focus on various technologies. They open a debate on government initiatives for digital business platforms and the implications of the digital revolution. This gives rise to the second limitation of this study, which was constrained to conceptually investigating the use of artificial knowledge in the resilience business model. It might be stimulating to carry out a quantitative exploration of artificial knowledge, specifically on how organizations understand this concept to promote digitization. In conclusion, this study's conceptual framework on artificial knowledge and digitization in SCM aims to increase SCM accountability and sustainable performance, especially when disruptive phenomena or crises occur which require the resilience of business organizations.

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(The Appendix follows overleaf)

Table A1.
Classification of
articles included in
the study

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
1	2022	Nudurupati, S. S., Budhwar, P., Pappu, R. P., Chowdhury, S., Kondala, M., Chakraborty, A., and Ghosh, S. K.	Transforming sustainability of Indian small and medium-sized enterprises through circular economy adoption	<i>Journal of Business Research</i>	This study describes the benefits of usage of CE within the organization to achieve superior performance in an emerging market context. The main findings highlight that CE implementation can foster the orientation of six other components that can guide Indian SME managers to achieve better resource utilization, cost-effective methods, stakeholder engagement, collaboration, and better sustainable performance. This study analysis the know-how of big data analytics capability to achieve competitive advantage. The findings are critical for policy makers and managers on big data analytics capability and the study reinforced the role of BDAC in achieving competitive advantage during COVID-19 outbreak.	Case-study	Resource-based view
2	2022	Behl, A., Gaur, J., Pereira, V., Yadav, R., and Laker, B.	Role of big data analytics capabilities to improve sustainable competitive advantage of MSME service firms during COVID-19 – A multi-theoretical approach	<i>Journal of Business Research</i>	This study aims to investigate the digital agriculture supply chain management during the COVID-19 outbreak. The findings highlight that “Digital Technologies, Logistics and infrastructure” is important CSF for managing food security. The study investigates the role of big data and IoT in agriculture, food safety, social networks and supply chain modernization to assess food quality. The results highlight the main relationship between the issues discussed	Quantitative Research	OIPT and Institutional Theory
3	2022	Joshi, S., and Sharma, M.	Digital technologies (DT) adoption in agri-food supply chains amidst COVID-19: an approach towards food security concerns in developing countries	<i>Journal of Global Operations and Strategic Sourcing</i>	The study aims to investigate the digital agriculture supply chain management during the COVID-19 outbreak. The findings highlight that “Digital Technologies, Logistics and infrastructure” is important CSF for managing food security. The study investigates the role of big data and IoT in agriculture, food safety, social networks and supply chain modernization to assess food quality. The results highlight the main relationship between the issues discussed	Quantitative Research	Fuzzy set theory
4	2022	Misra, N. N., Dixit, Y., AlMalahi, A., Bhullar, M. S., Upadhyay, R., and Martynenko, A.	IoT, Big Data, and Artificial Intelligence in Agriculture and Food Industry	<i>IEEE Internet of Things Journal</i>	The study aims to investigate the role of big data and IoT in agriculture, food safety, social networks and supply chain modernization to assess food quality. The results highlight the main relationship between the issues discussed	Review	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
5	2022	Reza-Gharehbagh, R., Hafezalkotob, A., Makui, A., and Sayadi, M. K.	Financing green technology development and role of digital platforms: Insourcing vs. outsourcing	Technology in Society	This study analyzes the green technology development of a capital-constrained manufacturing entrepreneur. The findings highlight environmental policies by governments determine their strategies and offer a platform that drives the solutions of manufacturing entrepreneurs pursuing green innovation. This study aims to examine the embodied energy of China's ICT sectors. The finding highlight that ICT sectors indirectly consume more energy from their upstream sectors.	Quantitative Research	Game Theory
6	2022	Shi, J., Li, C., and Li, H.	Energy consumption in China's ICT sectors: From the embodied energy perspective	Renewable and Sustainable Energy Reviews	This study discusses about global COVID-19 pandemic under sustainability framework lens to identify the different approaches to support sustainable production. The findings reveal the role of COVID-19 pandemic in changing of people's behavior.	Quantitative Research	N/A
7	2022	Begum, H., Abbas, K., Alam, A. F., Song, H., Chowdhury, M. T., and Ghani, A. B. A.	Impact of the COVID-19 pandemic on the environment and socioeconomic viability: a sustainable production chain alternative	Foresight	This study investigates about feasibility of applying blockchain technology in marine plastic debris management. The results evidence that blockchain technology is relevant in the marine plastic debris management.	Quantitative Research	N/A
8	2022	Gong, Y., Wang, Y., Frei, R., Wang, B., and Zhao, C.	Blockchain application in circular marine plastic debris management	Industrial Marketing Management	This article investigates how advanced automation is poised to politicize the infrastructural space under the umbrella of COVID-19 pandemic. The results highlight how logistics is turning to advanced automation to drive productivity outside labor, as well as spur self-service consumption and contest labor's future	Case-study	N/A
9	2022	Lin W.	Automated infrastructure: COVID-19 and the shifting geographies of supply chain capitalism	Progress in Human Geography		Review	N/A

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Table A1.

Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
10	2022	He J.	Sustainable Seafood Consumption in Action: Reinvigorating Consumers' Right to Information in a Borderless Digital World	<i>Journal of International Economic Law</i>	This study addresses consumer law after consumer legal information conduit to integrate interests with industry and stakeholder regulation through globalization over digital supply chains	Review	N/A
11	2022	Griffin, T. W. Harris, K. D., Ward, J. K., Goeringer, P., and Richard, J. A.	Three Digital Agriculture Problems in Cotton Solved by Distributed Ledger Technology	<i>Applied Economic Perspectives and Policy</i>	The study explains that the issues in the data include the cotton industry through applications and technology ledgers that are distributed in the current farm through monitoring the performance of data on quality assurance that provides more information to warehouse managers for the coordination of supply chain growth	Review	N/A
12	2022	Umar, M., Khan, S. A. R., Muhammad Zia-ul-haq, H., Yusliza, M. Y., and Farooq, K.	The role of emerging technologies in implementing green practices to achieve sustainable operations	<i>TQM Journal</i>	This study aims to analyze the effect of industry 4.0 on green practices in the context of emerging economies. The findings highlight the green approach adoption in SCM help the firms for the economic, social, and environmental issues	Quantitative Research	N/A
13	2022	Nasir, S. B., Ahmed, T., Karmaker, C. L., Ali, S. M., Paul, S. K., and Mejjandar, A.	Supply chain viability in the context of COVID-19 pandemic in small and medium-sized enterprises: implications for sustainable development goals	<i>Journal of Enterprise Information Management</i>	This study examines the contextual relations among the factors influencing supply chain viability for achieving long-term SDGs. The findings reveal that the creation of SC digital twin and transformation of SCs to supply networks assist in the policymakers' decisions	Quantitative Research	N/A

(continued)

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
14	2022	Song, M. Zheng, C., and Wang, J.	The role of digital economy in China's sustainable development in a post-pandemic environment	<i>Journal of Enterprise Information Management</i>	This study investigates the relationship between digital economy and sustainable development, especially the impacts of the outbreak on economic and social development in the China's digital economy The results evidence the positive role of China's digital economy in the country's sustainable economic and social development	Quantitative Research	N/A
15	2022	Mahroof, K. Omar, A., and Kurcukaltan, B.	Sustainable food supply chains: overcoming key challenges through digital technologies	<i>International Journal of Productivity and Performance Management</i>	This study discusses about digital technologies in SSCM for the increasing of sustainable performance through the circular economy approach. Findings highlight business continuity, waste reduction, performance measurement approach, and organizational learning are the key factors to performance improvement	Qualitative Research	N/A
16	2022	Huynh P.H.	Enabling circular business models in the fashion industry: the role of digital innovation	<i>International Journal of Productivity and Performance Management</i>	This study analysis digital circular business models in the fashion industry. The study evidence three archetypes of digital-based circular business models: the blockchain-based supply chain model, the service-based model, and the pull demand-driven model	Multiple-case study	N/A

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Table A1.

Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
17	2022	Kumar, S., Raut, R. D., Narwane, V. S., Narkhede, B. E., and Mirdulji, K.	Implementation barriers of smart technology in Indian sustainable warehouse by using a Delphi-ISM-ANP approach	<i>International Journal of Productivity and Management</i>	This study discusses about the adoption barriers of smart technology in the Indian warehouse to meet sustainability. The study explains that there is a lack of support by the government to block firms due to lack of vision and mission and unskilled labor which is the most important barrier in the implications of sustainable supply chain activities in warehouses	Quantitative Research	N/A
18	2022	Ma, Y., Mockus, A., Zaretski, R., Bichescu, B., and Bradley, R.	A Methodology for Analyzing Uptake of Software Technologies among Developers	IEEE Transactions on Software Engineering	The study discusses about software technology adoption by developers. The findings provided a test empirically measures that are likely to affect software adoption	Quantitative Research	Social contagion theory
19	2022	Zhang, Y., and Zhang, C.	Improving the Application of Blockchain Technology for Financial Security in Supply Chain Integrated Business Intelligence	Security and Communication Networks	The study describes the emerging block chain technology which is the main source of shared financial center to introduce the new model on the shared financial service model	Case-study	N/A
20	2022	Reza-Gharehbagh, R., Arisian, S., Hafezalkotob, A., and Maku, A.	Sustainable supply chain finance through digital platforms: a pathway to green entrepreneurship	Annals of Operations Research	This study analysis the green new product development problem of a risk-averse capital constrained supply chain. The findings reveal that government intervention policy adjusts to lead to better outcomes, to neutralize the risk strike between EF and DF.	Quantitative Research	N/A
21	2022	Makridakis, G., Mavrepis, P., and Kyriazis, D.	A deep learning approach using natural language processing and time-series forecasting towards enhanced food safety	Machine Learning	This study investigates reinforcement techniques were used on food products to learn through historical announcements to predict future calls that help food companies to deliver foods in a timely manner	Quantitative Research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
22	2022	Oguntegbe, K. F., Di Paola, N., and Vona, R.	Communicating responsible management and the role of blockchain technology: social media analytics for the luxury fashion supply chain	<i>TQM Journal</i>	This study analysis the channels of firms' communication regarding the sustainable responsibility in SCM and the role of blockchain technology. This study reveals that there are eight key factors against responsible management practices that shed new light on the role of management in the block chain. This study analysis the key resources to adopt autonomous robots in SCM. The results reveals the linkage between the cost of innovation and the decision to implement autonomous robots. This study investigates the organizational resources in the linkages between SCM and AI's advantages. The findings highlight the trustworthiness of AI in SCM.	Qualitative Research	N/A
23	2022	Shamout, M., Ben-Abdallah, R., Alshurideh, M., Alzoubi, H., Kurdi, B., and Hamadneh, S.	A conceptual model for the adoption of autonomous robots in supply chain and logistics industry	Uncertain Supply Chain Management		Quantitative Research	N/A
24	2022	Hasija, A., and Esper, T. L.	In artificial intelligence (AI) we trust: A qualitative investigation of AI technology acceptance	<i>Journal of Business Logistics</i>	This study investigates the organizational resources in the linkages between SCM and AI's advantages. The findings highlight the trustworthiness of AI in SCM.	Qualitative Research	N/A
25	2022	Chen Q.	Research on Marine Economic Development Information Management System Based on Supply Chain Technology	<i>Journal of Interconnection Networks</i>	This study analysis blockchain technologies and intelligent contracts in SCM. The results highlight the adoption of Supply Chain Management based on Marine Economic Development (SCM-MED) methods are trustworthy for the information handling and the reduction of lead times.	Quantitative Research	N/A
26	2022	Kotilo V.	Business model for integrated sustainable value creation: A supply chain perspective	Problems and Perspectives in Management	This study analysis the relationship between digital services and value chain, as well as the social responsibility about the business model for sustainability goals. The results reveal the significant of the integrate approach between technologies adoption and resource management, e.g. human resource	Quantitative Research	Stakeholder Theory

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Table A1.

Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
27	2022	Grover, P., Kar, A. K., and Dwivedi, Y. K.	Understanding artificial intelligence adoption in operations management: insights from the review of academic literature and social media discussions	Annals of Operations Research	This study analyzes the AI adoption in the business organizations, especially, on six resources. The results describe the limitation and future direction of research guidelines to conclude the application of AI to components of the OM	Review	Competing theory of behavior for AI (Thompson)
28	2022	Kumar, P., Sharma, D., and Pandey, P.	Coordination mechanisms for digital and sustainable textile supply chain	<i>International Journal of Productivity and Performance Management</i>	The study describes the game theory analysis for investing in 4.0 or sustainable innovation that advanced the supply chain virtual enterprise contract. The findings reveal the benefits for SCM from the investment in 4.0 and sustainable innovation	Quantitative Research	Game Theory
29	2021	Serrano-Ruiz, J. C., Mula, J., and Poler, R.	Smart master production schedule for the supply chain: A conceptual framework	Computers	The purpose of this study analyzed the framework based on the ZDM strategy and the optimization of the production schedule to increase the service level of the SCs. The results provide a conceptual framework to develop new MPS optimization models and algorithms in supply chain 4.0 (SC4.0) environments	Review	Fuzzy set theory
30	2021	Rao, P. H. N., Vihari, N.S., and Jabbeeen, S.S.	Reimagining the Fashion Retail Industry Through the Implications of COVID-19 in the Gulf Cooperation Council (GCC) Countries	FIIB Business Review	This study discusses about business strategies for fashion retail companies in the post-pandemic business environment. The results reveal that rethinking business strategy for GCC fashion retail with digitalization technologies to advance society in post-pandemic supply chain environments	Review	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
31	2021	Wong C.Y.	Celebrating JPDLM's 50th anniversary: a reflection on its contributions and future directions	<i>International Journal of Physical Distribution and Logistics Management</i>	This study analysis the field of logistics and supply chain management (LSCM) through the articles published in JPDLM. The results highlight the main interest on sustainability, reverse logistics, resilience, and digital technology innovation issues	Review	Advance theory
32	2021	Filieri, R., D'Amico, E., Destefanis, A., Paolucci, E., and Raguseo, E.	Artificial intelligence (AI) for tourism: an European-based study on successful AI tourism start-ups	<i>International Journal of Contemporary Hospitality Management</i>	This study analysis the characteristics of tourism AI start-ups, the AI technological domains financed by Venture Capitalists, and the phases of the supply chain. The results highlight that high funding for AI technological domains mean the high interest in AI solutions	Quantitative and qualitative Research	Human capital theory, Gendered theory
33	2021	Sharma, M., Luthira, S., Joshi, S., and Kumar, A.	Accelerating retail supply chain performance against pandemic disruption: adopting resilient strategies to mitigate the long-term effects	<i>Journal of Enterprise Information Management</i>	This study discusses about the retail supply chains to identify operations and strategies for post-pandemic period. The results highlight the relevance of the collaboration to improve the performance, as well as the Order Fulfilment and Digital RSCs for a resilient business strategy	Quantitative Research	RBV theory
34	2021	Narwane, V. S., Raut, R. D., Yadav, V. S., Chekhirouhou, N., Narkhede, B. E., and Priyadarshinee, P.	The role of big data for Supply Chain 4.0 in manufacturing organisations of developing countries	<i>Journal of Enterprise Information Management</i>	This study describes the performance of the company's top management in terms of sustainable operations and the sourcing of environmental supplies with a significant level through the adoption of big data	Quantitative Research	Technology acceptance model (TAM), Unified Theory of Acceptance and use of Technology (UTAUT), Theory of Planned Behavior (TPB)

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Table A1.

Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
35	2021	Chupanova, K. A., Otrokov, O. Y., Mosina, N. V., Sekerni, V. D., Zharov, A. N., and Garnik, S. V.	Supply Chain Management Concept and Digital Economy: Digital Supply Chain Technological Innovation	<i>Indian Journal of Economics and Development</i>	The study reveals that to get an optimal logistic solution for the business areas it is necessary to pay more attention to the supply chain system	Review	N/A
36	2021	Ferrari L., Morgione S., Rutz D., Mergner R., Doracić B., Hummelshoj R.M., Grimm S., Kazagic A., Merzic A., Krasatsienka A., Rossi S., Pauschinger T., Nakrostiene A., Pumputienė E., and Pozzi M.	A comprehensive framework for District Energy systems upgrade	Energy Reports	The aim of this study is to present the effects of the DH system through demonstrations of various good practices	Review	N/A
37	2021	Picciali, F., Giampaolo, F., Prezioso, E., Camacho, D., and Acampora, G.	Artificial intelligence and healthcare: Forecasting of medical bookings through multi-source time-series fusion	Information Fusion	This study reveals that the forecasting framework was multi-source time series to rely on deep learning. The data collection is based on e-health records from the largest hospital in southern Italy	Quantitative Research	N/A
38	2021	Ranking the Factors Influencing e-Trading Usage in Agricultural Marketing Suri, P. K.	Global Journal of Flexible Systems Management	This study aims to rank the variables used in the e-Trading for Indian agriculture marketing. The results highlight that "Trust", "Cost", "Perceived Ease of Use", and "Facilitating Conditions" are the main variables influencing the context investigated	Qualitative Research	Theory of Planned Behavior	

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
39	2021	Rogulin R.S.	The Place of ICT and Entrepreneurship in Forming Sustainable Supply Chains	Ekonomicsheskaya Politika	This study discusses about the digital technologies and entrepreneurship for efficiency in SCM related to the pre- and post-crisis periods. The results highlight the relevance of ICT in SCM especially in the crisis periods	Quantitative Research	N/A
40	2021	Tsolakis N., Niedenzu D., Simonetto M., Dora M., and Kumar M.	Supply network design to address United Nations Sustainable Development Goals: A case study of blockchain implementation in Thai fish industry	<i>Journal of Business Research</i>	The study objectives describe the usage of ecosystems which helps to achieve the sustainable developments goals after the resilience of management in supply chain	Case-study	Principal-Agent Theory, Transaction Cost Analysis, Resource-Based View, Network Theory
41	2021	Potocka-Stonek N.	How to regulate "digital piecework"? Lessons from global supply chains	<i>Lavoro e Diritto</i>	This study analysis the regulatory framework for global supply chains (GSCs) including the crowdwork platforms. The results reveal there are several issues linked to transnational labor governance need a strengthening of discipline	Review	N/A
42	2021	Liu P., Hendaianpour A., Hamzehlou M., Feylizadeh M.R., and Razmi J.	Identify and rank the challenges of implementing sustainable supply chain blockchain technology using the bayesian best worst method	<i>Technological and Economic Development of Economy</i>	The study aims to describe that block chain technologies overcome barriers that are challenged during professional implementation	Case-study	N/A
43	2021	Calvão F., and Archer M.	Digital extraction: Blockchain traceability in mineral supply chains	<i>Political Geography</i>	This study discusses about the digital extraction conceptualization under the lens of blockchain-based due diligence, chain of custody certifications, and transparency mechanisms. The results reveal that uncertainty and ambiguity underlying blockchain-enabled traceability systems do not filled the need to ensure transparency and accountability	Qualitative research	Actor-Network-Theory

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Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
44	2021	Bagloee S.A., Heshmati M., Dia H., Ghaderi H., Pettit C., and Asadi M.	Blockchain: The operating system of smart cities	<i>Cities</i>	The objective of the study describes the input of professionals the wide range of stakeholders who underlie the disruptive forces of the block chain for the opportunities of the potential context of smart cities	Case-study	N/A
45	2021	Akhtar P., Azima N., Ghafar A., and Din S.U.	Barricades in the Adoption of Block-Chain Technology in Supply Chain Management: Challenges and Benefits	<i>Transnational Marketing Journal</i>	The purpose of this study reveals the mechanisms of supply chain managers to prepare the business structure to adopt the latest technology	Review	N/A
46	2021	Gleim M.R., and Stevens J.L.	Blockchain: a game changer for marketers?	<i>Marketing Letters</i>	The goal of the study is to reveal the block chain contends to turn potential companies into technology to pave a path	Review	N/A
47	2021	Lee H.-Y.	Changing Paradigms in US and EU Supply Chains: Focusing on Sustainability Issues	<i>Journal of International Logistics and Trade</i>	The objectives of this study revealed that international trade rules do not sufficiently address the new issues of new questions that can support the needs of countries	Case-study	N/A
48	2021	Oguntegbe K.F., Di Paola N., and Vona R.	Blockchain technology, social capital and sustainable supply chain management	<i>Sinergie</i>	The aim of this study integrates resource-based theories that have capitalized on social capital to explore the chain contribution of sustainability technologies for supply chain management to developed social capital	Review	N/A
49	2021	Smorodinskaya N.V., Katukov D.D., and Malugin V.E.	GLOBAL VALUE CHAINS IN THE AGE OF UNCERTAINTY: ADVANTAGES, VULNERABILITIES, AND WAYS FOR ENHANCING RESILIENCE	<i>Baltic Region</i>	The scope of this study reveals that there are three categories of GVC resilience strategies of operational optimization, multi-structural optimization and digitization which are used in developing countries	Quantitative research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
50	2021	Bhattacharyya S.S., and Kumar S.	Study of deployment of "low code no code" applications toward improving digitization of supply chain management	<i>Journal of Science and Technology Policy Management</i>	The aim of the study is to describe the concept of "low code no code" applications and how it works to reveal the scope of web design, especially in the field of supply chain management	Qualitative study	N/A
51	2021	Karamitsos G., Bechtis D., Tsolakis N., and Vlachos D.	Unmanned aerial vehicles for inventory listing	<i>International Journal of Business and Systems Research</i>	This study discusses about a system used in an industrial facility layout allowing the daily operation of a drone. The results highlight a web-based multifunctional interface for monitoring inventory levels	Review	N/A
52	2021	Mohapatra B., Tripathy S., Singhal D., and Saha R.	Significance of digital technology in manufacturing sectors: Examination of key factors during Covid-19	<i>Research in Transportation Economics</i>	The aim of the study is to reveal the connection of policy recommendations with industry leaders, to advance the digital technologies of the manufacturing section during the time of Covid-19	Case-study	N/A
53	2021	Chaudhuri A., Bhatia M.S., Kayikci Y., Fernandes K.J., and Fosso-Wamba S.	Improving social sustainability and reducing supply chain risks through blockchain implementation: role of outcome and behavioural mechanisms	<i>Annals of Operations Research</i>	This study identifies the outcome-based and behavioral mechanisms needed to generate social sustainability and reduce risks through blockchain. This study provides user-friendly applications, developing secure digital payment systems, providing support for suppliers and farmers and adapting to local conditions	Qualitative study	Agency theory
54	2021	Frederico G.F., Kumar V., Garza-Reyes J.A., Kumar A., and Agrawal R.	Impact of I4.0 technologies and their interoperability on performance: future pathways for supply chain resilience post-COVID-19	<i>International Journal of Logistics Management</i>	The study investigates the role of industry I4.0 technologies, to create supply chain management operations more effectively to integrate technologies for SC resilience	Qualitative and Quantitative research	N/A

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Table A1.

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
55	2021	Gharibi K., and Abdollahzadeh S.	A mixed-integer linear programming approach for circular economy-led closed-loop supply chains in green reverse logistics network design under uncertainty	<i>Journal of Enterprise Information Management</i>	This study assesses the total efficiency of the resources. The results evidence the waste reduction using green resources	Quantitative research	N/A
56	2021	Dwivedi S.K., Roy P., Karda C., Agrawal S., Amin R.	Blockchain-Based Internet of Things and Industrial IoT: A Comprehensive Survey	<i>Security and Communication Networks</i>	This study analysis the linkages between IoT and Blockchain technology. The results reveal the need for smart contracts in IoT and IIoT systems	Review	N/A
57	2021	Santos P.H.A., and Martins R.A.	Food Waste And Performance Measurement Systems: A Systematic Review Of The Literature [Sistemas de medição de desempenho e desperdício de alimentos: Revisão sistemática da literatura] [Sistemas de medição de desempenho y desperdicio de alimentos: Unarevisión sistemática de la literatura]	<i>RAE Revista de Administração de Empresas</i>	The objective of the study is to indicate the systematic literature review on food waste and highlight its impacts on the performance of the measurement system for supply chain management, with greater emphasis on sustainability	Review	Traditional control theory
58	2021	Khalifa N., AbdElghany M., and AbdElghany M.	Exploratory research on digitalization transformation practices within supply chain management context in developing countries specifically Egypt in the MENA region	<i>Cogent Business and Management</i>	The aim of the study is to reveal how the extremely difficult environment in emerging economies constrained insufficient financial resources, low wages, and inadequate job skills	Quantitative Research	N/A
59	2021	Chen C.-H.V., and Chen Y.-C.	Influence of intellectual capital and integration on operational performance: big data analytical capability perspectives	<i>Chinese Management Studies</i>	The study reveals the findings that the benefits of the possible effects of intellectual capital, integration and BDAC on operational performance	Quantitative Research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
60	2021	Dev N.K., Shankar R., Zacharia Z.G., and Swami S.	Supply chain resilience for managing the ripple effect in Industry 4.0 for green product diffusion	<i>International Journal of Physical Distribution and Logistics Management</i>	The objective of the study is to highlight the supply chain management resilience through Industry 4.0 to improve supply chain management, to promote green product and recover speed through promotional investments	Case-study	N/A
61	2021	A.S.B. and Ramanathan U.	The role of digital technologies in supply chain resilience for emerging markets' automotive sector	<i>Supply Chain Management</i>	The study outlines the role of digital technologies that foster supply chain management resilience in managing business competitive advantage and reveals the limits to the automotive sector	Quantitative Research	N/A
62	2021	Bisogni P.G., Brdulak H.M., Cantoni F., Niine T., and Zsifkovits H.	The role of European Logistics Association 2020 Standards in facing modern industry expectations and logistics managers' competencies	<i>International Journal of Value Chain Management</i>	This study reveals three different methods that can formulate the expectations of the 2020 logistics association standards that allow additional insight into the homogeneity and heterogeneity of leading industries, especially in logistics managers	Review	N/A
63	2021	Agrawal P., and Narain R.	Analysis of enablers for the digitalization of supply chain using an interpretive structural modelling approach	<i>International Journal of Productivity and Performance Management</i>	The study findings describe the role of big data analytics and blockchain (IoT or AI), which are considered as the most powerful digitalization tool in the supply chain management and how the organization exploiting new opportunities through digital technologies	Qualitative Research	N/A
64	2021	Belhadi A., Kamble S., Gunasekaran A., and Mani V.	Analyzing the mediating role of organizational ambidexterity and digital business transformation on industry 4.0 capabilities and sustainable supply chain performance	<i>Supply Chain Management</i>	The study highlights the importance of potential pathways to link sustainable performance and 4.0 replacing CBMs to develop new sustainable business models to reconcile sustainability	Case-study	N/A

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Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
65	2021	Koilo V.	Developing new business models: Logic of network value or cross-industry approach	<i>Problems and Perspectives in Management</i>	The study aims to describe the identical key factors to investigate BMs and new factors that can effectively implement business models within the organization through various internal and external prerequisites	Review	N/A
66	2021	Hohn M.M., and Durach C.F.	Additive manufacturing in the apparel supply chain — impact on supply chain governance and social sustainability	<i>International Journal of Operations and Production Management</i>	This study aims to provide the corpus of the literature about the relationship between additive manufacturing (AM) and supply chains	Review	N/A
67	2021	Barykin S.Y., Kapustina I.V., Sergeev S.M., Kalinina O.V., Vilken V.V., de la Poza E., Putikhin Y.Y., and Volkova L.V.	Developing the physical distribution digital twin model within the trade network	<i>Academy of Strategic Management Journal</i>	The results reveal AM adoption improves the supply chain governance structures	Case-study	N/A
68	2021	Al Hlail R.A., and Shaker H.	Blockchain technology's status of implementation in Oman: Empirical study	<i>International Journal of Computing and Digital Systems</i>	The study describes the physical distribution of digital twin models from an economic point of view	Qualitative research	N/A
69	2021	Hjaltdóttir R.E., and Hild P.	Circular Economy in the building industry: European policy and local practices	<i>European Planning Studies</i>	The aim of the study is to illustrate the objectives by which the current scenario of blockchain technology implementation in Oman. The findings revealed a weak implementation of the technology in Oman.	Case-study	Practice theory
70	2021	Utami H.N., Alamanos E., and Kuznesof S.	"A social justice logic": how digital commerce enables value co-creation at the bottom of the pyramid	<i>Journal of Marketing Management</i>	The aim of the study is to foster the context of individually promised goals of supply chain management in terms of development to eliminate CE material waste and design to increase transparency	Case-study	Cultural Dimensions Theory, VCC theory, Marketing Theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
71	2021	Alvarez-Aros E.L., and Bernal-Torres C.A.	Technological competitiveness and emerging technologies in industry 4.0 and industry 5.0	<i>Anais da Academia Brasileira de Ciências</i>	The aim of the study is to illustrate how the term technological competitiveness developed and fostered economies by showing the important competencies to address personal skills	Review	N/A
72	2021	Vafadarnikjoo A., Badri Ahmadi H., Lion J.J.H., Botelho T., and Chalvatzis K.	Analyzing blockchain adoption barriers in manufacturing supply chains by the neutrosophic analytic hierarchy process	<i>Annals of Operations Research</i>	The study aims to determine “transaction level uncertainties” and how it is a critical barrier to gaining the highest weight in the final ranking of “risk privacy”, “management commitment”, “use of the shadow economy” and scalability challenges, in context. of blockchain adoption in supply chain management	Review	Mean-risk theory
73	2021	Cipollini C.	Blockchain and Smart Contracts: A Look at the Future of Transfer Pricing Control	<i>Intertax</i>	The study aims to illustrate the significant method of adopting various APA codes using smart contracts to establish a major international blockchain consortium	Case-study	N/A
74	2021	Cagliano A.C., Mangano G., and Rafele C.	Determinants of digital technology adoption in supply chain. An exploratory analysis	<i>Supply Chain Forum</i>	This study aims to foster the various contextual factors that can affect CDS in order to help practitioners or policy makers to define appropriate CDS strategies, especially through the use of digital technology for supply chain management operations	Case-study	N/A
75	2021	Belhadi A., Mani V., Kamble S.S., Khan S.A.R., and Verma S.	Artificial intelligence-driven innovation for enhancing supply chain resilience and performance under the effect of supply chain dynamism: an empirical investigation	<i>Annals of Operations Research</i>	The study aims to demonstrate the role of artificial intelligence for innovation-driven initiative for supply chain management and demonstrate the best use of AI capabilities to produce SCP in the long term. This study aims to motivate longitudinal research that could be used to expand the study and examine other aspects of the phenomena	Review	contingency theory, organizational information processing theory

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Table A1.

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
76	2020	Cavallo C., Sacchi G., and Carfora V.	Resilience effects in food consumption behaviour at the time of Covid-19: perspectives from Italy	<i>Heliyon</i>	The study aims to further the findings on recent changes in consumption habits brought about by the lockdown in Italy, as well as how behavioral changes are related to changes in the main food supply networks. The study revealed that many portrayed events are likely to continue well beyond the crisis and have an impact on how food consumption develops in Italy in the future	Qualitative Research	Planned Behavior Theory
77	2020	Bellingan M., Tilley C., Batista L., Kumar M., and Evans S.	Capturing the psychological well-being of Chinese factory workers	<i>International Journal of Operations and Production Management</i>	The study aims to examine the various variables that affect the well-being of workers in a Chinese factory, used to test a novel research methodology, and suggests actions to improve well-being in the workplace	Quantitative Research	Organizational Behavior Theory
78	2020	Sahabi I.G., Masoomi B., and Ghorbani S.	Expert oriented approach for analyzing the blockchain adoption barriers in humanitarian supply chain	<i>Technology in Society</i>	The study aims to reveal how the major obstacles of legislative ambiguity, lack of knowledge and staff training that can have a serious impact on sustainability. To strengthen the understanding, the current study encourages to help policymakers maximize their solutions to adopt blockchain adoption in supply chain management to offer a useful and varied solution	Review	Fuzzy set theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
79	2020	Safari M., and Areeb A.	A qualitative analysis of GRI principles for defining sustainability report quality: an Australian case from the preparers' perspective	<i>Accounting Forum</i>	The study aims to explain the benefits of shifting to two-way communication strategies that enable meaning-making and sense-making simultaneously, the findings offer examples of sustainability reporting best practice, as well as recommendations, such as digitizing the supply chain management for better communication strategies and mechanisms for relations with interested parties	Case-study	Stakeholder theory
80	2020	Yang K., Shi Y., Zhou Y., Yang Z., Fu L., and Chen W.	Federated Machine Learning for Intelligent IoT via Reconfigurable Intelligent Surface	<i>IEEE Network</i>	The study aims to describe the use of multi-access channel characteristic waveform superposition to design a communication-efficient federated machine learning framework based on over-the-air computing for smart IoT networks. By adjusting the wireless propagation environment, reconfigurable smart surfaces are also used to improve signal strength and reduce model aggregation error	Review	Contract Theory
81	2020	Andryushchenko G.I., Gridneva T.M., Tsartova K.G., Savina M.V., and Blinnikova A.V.	Problems and features of the human side of digital supply chain mechanism	<i>International Journal of Supply Chain Management</i>	The article discusses about the impacts on human resources from digitalization of SC. The results highlight the positive effects of digitalization	Qualitative research	N/A

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Table A1.

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
82	2020	Derakshannia M., Gervet C., Hâjji-Hassan H., Laurent A., and Martin A.	Data lake governance: Towards a systemic and natural ecosystem analogy	<i>Future Internet</i>	The study addresses the issue and offers some recommendations for novel approaches to managing data lakes that have been developed from a multidisciplinary scientific perspective. With a focus on the importance of the data lifecycle, the suggested methodologies replicate supply chain management and natural lake principles to achieve responsible data governance for the data lake	Case-study	N/A
83	2020	Gupta S., Modgil S., Gunasekaran A., and Bag S.	Dynamic capabilities and institutional theories for Industry 4.0 and digital supply chain	<i>Supply Chain Forum</i>	The objective of the study is to outline the role of the Industry 4.0 framework and how it can affect the components of the digital supply chain. The study significantly regulates the findings for professional bodies and accreditation agencies that must participate in the digital economy and use cutting-edge technology. Practicing managers and companies can use the study's findings to implement Industry 4.0 in the digital supply chain economy	Quantitative Research	Institutional theory
84	2020	Barrad S., Gagnon S., and Valverde R.	An analytics architecture for procurement	<i>International Journal of Information Technologies and Systems Approach</i>	The objectives of the study revealed that a new corporate architecture makes use of cutting-edge technology to drive the digital transformation of purchasing organizations. The study aims to assess how complex event processing (CEP), business rules, and analytics can be researched and used in the procurement industry to help save costs	Review	Design theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
85	2020	Wu J., Chen Z., and Ji X.	Sustainable trade promotion decisions under demand disruption in manufacturer-retailer supply chains	<i>Annals of Operations Research</i>	The objectives of the study described that revenue sharing can organize a supply chain but may not benefit the producer when vigorous trade promotions are required	Review	N/A
86	2020	Kartskhiya A.A., Tytychnyy S.A., Smirnov M.G., Dolgikh M.G., and Kilmelnitskiy L.A.	Digital technologies in supply chain management for production and digital economy development	<i>International Journal of Supply Chain Management</i>	The study aims to demonstrate the benefits of using digital supply chain management technology over conventional company logistics and management systems, particularly in COVID-19 situations	Case-study	Civil law theory
87	2020	Wong L.-W., Leong L.-Y., Hew J.-J., Tan G.W.-H., and Ooi K.-B.	Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs	<i>International Journal of Information Management</i>	This study analysis the effects from Blockchain Technology (BT) in SCM among Small-Medium Enterprises (SMEs) in Malaysia. The results evidence the support provided by BT for the transparency and security in the SC towards the sustainability field	Quantitative Research	Innovation adoption theory
88	2020	Jin B.E., and Shim D.C.	Changing the game to compete: Innovations in the fashion retail industry from the disruptive business model	<i>Business Horizons</i>	The study aims to find out how to effectively address basic requirements and the way businesses are run now, such as providing high-quality products at affordable prices, personalized services, and sustainable consumption. The study demonstrated that all three disruptors provide operating models for managing inventory control, quick market reactions, and demand uncertainty, all of which are inherent problems for conventional supply chains and forecast-based systems	Case-study	N/A

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Table A1.

Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
89	2020	Rymarczyk J.	Technologies, opportunities and challenges of the industrial revolution 4.0: Theoretical considerations	<i>Entrepreneurial Business and Economics Review</i>	The study indicates that modern cultures experience four eras of technological advancement, known as industrial revolutions. The study highlighted that IR 4.0. The study aims to assess the industrial application while making innovative discoveries such as the Internet of Things, artificial intelligence, sophisticated robotics, autonomous cars, cloud computing, big data, augmented/simulated reality, 3D printing, blockchain, nanomaterials	Review	N/A
90	2020	Kumar A., Liu R., and Shan Z.	Is Blockchain a Silver Bullet for Supply Chain Management? Technical Challenges and Research Opportunities	<i>Decision Sciences</i>	The study aims to methodically identify companies to understand the true costs and dangers of adopting blockchain technology. The learnings from the SCM context also apply to other industries that could make full use of blockchain technology	Review	N/A
91	2020	Alharthi S, Cerotti P.R., and Far S.M.	An Exploration of the Role of Blockchain in the Sustainability and Effectiveness of the Pharmaceutical Supply Chain	<i>IBIMA Business Review</i>	This study investigates the adoption of blockchain technology would affect the long-term viability and efficiency of the pharmaceutical supply chain. This study drew attention to difficulties with the way the pharmaceutical supply chain is now managed and showed how blockchain can be used to address and improve supply chain sustainability. While blockchain technology is undoubtedly in its infancy, academics have already noted success in its widespread adoption, particularly in the pharmaceutical and financial industries	Case-study	Technology, Organization, Environment Theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
92	2020	Sharma M., and Joshi S.	Digital supplier selection reinforcing supply chain quality management systems to enhance firm's performance	<i>TQM Journal</i>	This study reveals that vendor competence is the most important consideration when choosing a digital vendor in DSC that can increase the caliber of delivered goods and services. The study also looks at how manufacturing companies can adapt to the changing environment by having an effective framework to create value for internal and external partners. Vendor S8 has been named the top vendor based on WASPAS findings due to its high proficiency in terms of responsiveness, resilience, sustainable practices, and digital innovation	Case-study	Game Theory Approach
93	2020	Sundarakani B., Pereira V., and Ishizaka A.	Robust facility location decisions for resilient sustainable supply chain performance in the face of disruptions	<i>International Journal of Logistics Management</i>	The goal of the study is to assess the view of global container traffic and examine the sustainable elements along the global logistics corridor. The study included the judgments on where to locate the facilities, the report is valuable for the logistics corridor of the Middle East	Case-study	Disruptive innovation theory, supply chain network theory
94	2020	Del Giudice M., Chierici R., Mazzucchelli A., and Fiano F.	Supply chain management in the era of circular economy: the moderating effect of big data	<i>International Journal of Logistics Management</i>	This study aims to offer valuable insights for practitioners and make a novel contribution to the field of circular economy practices in a big data-driven supply chain. The study offers various attentions for greater environmental, social, and economic advantages, highlights the moderating role of big data in decision making and the implementation of circular supply chain solutions	Quantitative approach	Stakeholder theory, resource-based theory

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95	2020	Klimova T.B., Bogomazova I.V., Anoprieva E.V., Semchenko I.V., and Plokhikh R.V.	Digital supply chain management in the tourism and hospitality industry: Trends and prospects	<i>International Journal of Supply Chain Management</i>	The study discusses about digital supply chain management and its adoption. The results evidence the factors enabling the technology in the hospitality industry	Qualitative research	N/A
96	2020	Rejeb A. and Rejeb K.	Blockchain and supply chain sustainability [Blokchainiziró wnoważoność iantuchadostaw]	<i>Logforum</i>	The study investigates the concentration on the effects of supply chain management on blockchain technology. The study aims to highlight the transformational potential of blockchains and their ability to drive new disintermediated business models, increased operational efficiencies, and cost advantages	Review	N/A
97	2020	Queiroz M.M., Ivanov D., Dolgui A., and Fosso Wamba S.	Impacts of epidemic outbreaks on supply chains: mapping a research agenda amid the COVID-19 pandemic through a structured literature review	<i>Annals of Operations Research</i>	The study evaluates the results of the systematic literature review that influenza was the most widely reported pandemic outbreak and that resource allocation and distribution optimization became the most commented topic	Review	Network theory, resources based view, dynamic capabilities, contingency theory, organizational information processing theory
98	2020	Endratria	The role of the supply chain management in accounting information systems in the industrial revolution 4.0	<i>International Journal of Supply Chain Management</i>	The study aims to propose a new categorization of the literature based on the technology life cycle that distinguishes four areas of study: obsolete RTD in LSCM, mature RTD in LSCM, emerging RTD in LSCM and a general information systems approach and IDT at LSCM	Review	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
99	2020	Babenko IV., Anisimov A.Y., Melnikov V.Y., Kubrak I.A., Golobov I.L., and Boyko V.L.	Sustainable supply chain management in city logistics solutions	<i>International Journal of Supply Chain Management</i>	This study discusses about the SCM, digitalization and smart technologies. The results evidence the relevance of "electronic government"	Qualitative research	N/A
100	2020	Wagner N., Aritua B., and Zhu T.	The new silk road: Opportunities for global supply chains and challenges for further development [Nowyjedwabnyślak: Możliwościglobalne gońacuchadostawiw yzwaniadladalszegorozwoju]	<i>Logforum</i>	The study aims to contribute to the body of knowledge on the subject scientifically and segmented in a more sustainable way within the framework of global supply chains. The study suggests several measures on how to enable further growth and improve the sustainability of this traffic based on a review of the literature and interviews with logistics operators and carriers	Case study	N/A
101	2019	Hartley J.L., and Sawaya W.J.	Tortoise, not the hare: Digital transformation of supply chain business processes	<i>Business Horizons</i>	This study discusses that use and implementation of several technological activities which are used in supply chain for digital strategies to update the underlying information system	Qualitative Research	N/A
102	2019	Ainsworth-Rowen E.	Networked, smart, and responsive devices in sustainable internet-of-things-based manufacturing systems: Industrial value creation, cognitive decision-making algorithms, and operational performance improvement	<i>Economics, Management, and Financial Markets</i>	This study investigates the corpus of literature on networked, smart, and responsive devices in sustainable Internet-of-Things-based manufacturing systems	Quantitative Research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
103	2019	Tubaro P., and Casilli A.A.	Micro-work, artificial intelligence and the automotive industry	<i>Journal of Industrial and Business Economics</i>	The aim of the study is to test one's own ongoing basis of structural micro-work which accompanying the development sector. At the same time, the micro work affects the linguistic and geographical region	Review	N/A
104	2019	Beilin I.L., Homenko V.V., and Aleeva D.D.	Digital modeling of economic processes and supply chain management in the formation of cooperative relations in the petrochemical cluster of the region	<i>International Journal of Supply Chain Management</i>	This study investigates chemical corporations in the SCM under the financial	Quantitative research	Fuzzy theory
105	2019	Afanashev V.Y., Lyubimova N.G., Utkov V.F., and Shayakhmetov S.R.	Digitalization of energy manufacture: Infrastructure, supply chain strategy and communication	<i>International Journal of Supply Chain Management</i>	The results of this study highlight the relevance of linkages with AI	Review	N/A
106	2019	Sgantzos K., and Grigg I.	Artificial intelligence implementations on the blockchain. Use cases and future applications	<i>Future Internet</i>	The study discusses maintaining the energy-saving capacity of a full digitalization of a firm in order to establish favorable conditions for customer growth, which is necessary to increase the power of digitalization	Case-study	Quantum theory
107	2019	Cole R., Stevenson M., and Aitken J.	Blockchain technology: implications for operations and supply chain management	<i>Supply Chain Management</i>	This study aims to describe the relationship between artificial intelligence and the block chain to describe the effect of potential industries including the Internet of Things, smart cities and other areas	Case-study	Transaction cost economics Theory
108	2019	Katz D.	Plastic bank: Launching social plastic® revolution. Field Actions Science Reports	<i>The Journal of Field Actions</i>	The scope of this study reveals that blockchain technologies for supply chain management operations identify the research agenda for the future	Qualitative Research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
109	2019	Mukerji M., and Roy P.S.	Platform interactions and evolution of Ola's organizational field	<i>Australasian Journal of Information Systems</i>	The study describes that a sizable developing nation has digital platform pipelines with great potential for online sales but relatively low internet and smartphone penetration rate	Review	N/A
110	2019	Felstead M.	Cyber-physical production systems in industry 4.0: Smart factory performance, innovation-driven manufacturing process innovation, and sustainable supply chain networks	<i>Economics, Management, and Financial Markets</i>	This study analyzes the cyber-physical production systems in Industry 4.0. The results reveal the relevance of Internet of Things in the supply chain networks	Quantitative research	N/A
111	2019	Petrova N.I., Fedorova A.V., Petrova N.N., and Alekseeva N.N.	Arctic entrepreneurship and supply chain strategy integration as part of creative economy	<i>International Journal of Supply Chain Management</i>	This study is focused on supply chain strategy and entrepreneurship in the Arctic region. The results evidence the need the new figures of employment, conservation of the environment, and ethnos cultural	Quantitative research	N/A
112	2019	Nica E.	Cyber-physical production networks and advanced digitalization in industry 4.0 manufacturing systems: Sustainable supply chain management, organizational resilience, and data-driven innovation	<i>Journal of Self-Governance and Management Economics</i>	This study discusses about cyber-physical production networks and advanced digitalization in Industry 4.0 manufacturing systems The results are mixed as for the relationship between the two research fields	Quantitative research	N/A
113	2019	Pongpanit P., and Somsarut P.	The critical nature of road logistics industry process capability's role in sustainable tourism development	<i>African Journal of Hospitality, Tourism and Leisure</i>	The objectives of this study describe that with the combination of technological innovation road service companies can ensure the survival edge of the Internet-connected, smartphone-enabled social media environment	Quantitative research	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
114	2019	Arora P., and Thompson L.H.	Crowdsourcing as a platform for digital labor unions	<i>International Journal of Communication</i>	The objectives of this study reveal the difficulties of developing or putting practices for new monitoring systems into the new types of corporate social responsibility rebranding platform	Review	N/A
115	2019	Tuffnell C., Kral P., Durana P., and Krulicky T.	Industry 4.0-based manufacturing systems: Smart production, sustainable supply chain networks, and real-time process monitoring	<i>Journal of Self-Governance and Management Economics</i>	This study investigates the main tools of Industry 4.0 for SCM. The results reveal the assistance provided from digital technology to the developed economies	Quantitative research	N/A
116	2019	Mihardjo L.W.W., Sasmoko, Alamsjah F., and Elidjen	The influence of digital customer experience and electronic word of mouth on brand image and supply chain sustainable performance	<i>Uncertain Supply Chain Management</i>	The objective of the study describes that word of mouth on the digital customer experience both contributed to the brand promotion image	Review	N/A
117	2019	Muñoz-Villamizar A., Solano E., Quintero-Araujo C., and Santos J.	Sustainability and digitalization in supply chains: A bibliometric analysis	<i>Uncertain Supply Chain Management</i>	The purpose of the study is to reveal that digitalization and sustainability are both emerging fields with a supply chain that has increased over the past decade that has been planning, developing, conducting, and publishing as a consequence of the results	Review	N/A
118	2019	Kaur H.	Modelling internet of things driven sustainable food security system	<i>Benchmarking</i>	The objectives of this study reveal that food security for all is ensured by government through a public distribution system until a sustainable food security system is built	Case-study	N/A
119	2019	Rahman N.A.A., Muda J., Mohammad M.F., Ahmad M.F., Rahim S.A., and Fernando M.V.	Digitalization and leapfrogging strategy among the supply chain member: Facing GiG economy and why should logistics players care?	<i>International Journal of Supply Chain Management</i>	The study reveals that the issues of digitalization and the GiG economy in the logistics sector inform that the support of a large population around the world is needed	Review	resource based view (RBV) theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
120	2019	Ukolov V.F., Rudolph K., and Ostrovskaya A.A.	Adaptation of the enterprises of the real economy sector to supply chain management and digitalization in the conditions of the development of virtual relations	<i>International Journal of Supply Chain Management</i>	This study reveals that companies in transition in the digitization sector use theoretical and practical aspects of adaptation	Case-study	N/A
121	2019	de Zegher J.F., Iancu D.A., and Lee H.L.	Designing contracts and sourcing channels to create shared value	<i>Manufacturing and Service Operations Management</i>	This study reveals that it underscores the need for effective design of value chain improvements to enable sustainable implementation	Review	N/A
122	2018	García-Muñiz F.F., González-Sánchez R., Ferrari A.M., and Settembre-Blundo D.	The paradigms of Industry 4.0 and circular economy as enabling drivers for the competitiveness of businesses and territories: The case of an Italian ceramic tiles manufacturing company	<i>Social Sciences</i>	This study investigates the phases of the transition from a linear to a circular economy. This study develops a procedure to adopt the sustainability in the manufacturing environment. The results evidence the use of digitalization for using of impact assessment tools	Case-study	N/A
123	2018	Cherviakova V., and Cherviakova T.	Value opportunities for automotive manufacturers in conditions of digital transformation of the automotive industry	<i>Journal of Applied Economic Sciences</i>	This study analysis the financial performance of automotive companies. The results reveal the main phases of transformation strategy for these companies using AI	Quantitative Research	N/A
124	2018	Lopes de Sousa Jabbour A.B., Jabbour C.J.C., GodinhoFilho M., and Roubaud D.	Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations	<i>Annals of Operations Research</i>	This study objective reveals that the Industry 4.0 discussion and the CE work together all to understand the potential contribution to the integration of Industry 4.0 for relevant management theories	Review	Resource-based view, Stakeholder theory, Institutional theory, Ecological modernization
125	2018	Horton K.	Just Use What You Have: Ethical Fashion Discourse and the Feminisation of Responsibility	<i>Australian Feminist Studies</i>	The purpose of this study examines the historical era of consumer responsibility fashion by drawing on popular discourses on good peer contacts	Review	N/A

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
126	2018	Tooranloo HS, Karimi S, and Vaziri K.	Analysis of the factors affecting sustainable electronic supply chains in healthcare centers: An interpretive-structural modeling approach	<i>Information Resources Management Journal</i>	The purpose of this study to provide infrastructure technology should be considered the most crucial elements to influence the sustainability of healthcare facilities of electronic supply chains	Case-study	N/A
127	2018	Ketter W, Collins J, Saar-Tsechansky M, and Marom O.	Information systems for a smart electricity grid: Emerging challenges and opportunities	<i>ACM Transactions on Management Information Systems</i>	The objectives of the study are to reveal that the improvement of information transformation processes of the process on the challenge of the information system to overcome and achieve the goals	Review	N/A
128	2018	Bucci G, Pentivoglio D, and Finco A.	Precision agriculture as a driver for sustainable farming systems: State of art in literature and research	<i>Quality - Access to Success</i>	The study aims to describe the overview of the global growth and state of precision agriculture, from 2000 to the present, and highlights the wide range of technology that is now accessible and its more rapid development	Review	N/A
129	2017	Palm M.	Analog backlog: Pressing records during the vinyl revival	<i>Journal of Popular Music Studies</i>	The objective of the study describes the separation of independent music from digitization as two different phenomena, advocates and academics of independent music can most successfully combat corporate dominance	Case-study	Theory of the leisure class
130	2017	Lu Q, Xu X.	Adaptable Blockchain-Based Systems: A Case Study for Product Traceability	<i>IEEE Software</i>	This study analysis the tracing in the supply chain through decentralized infrastructure. The results highlight the significant role of Blockchain Technology in the processes investigated	Case-study	N/A
131	2017	Mogre R, Lindgreen A., and Hingley M.	Tracing the evolution of purchasing research: future trends and directions for purchasing practices	<i>Journal of Business and Industrial Marketing</i>	The purpose of the study is to reveal that supply chain management, strategy, marketing and other business operations are increasingly intertwined with purchasing	Review	Stakeholder theory, network theory

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Serial No	Year	Authors	Title	Source title	Aims and findings	Methodology	Theories
132	2014	Holmström J., and Partanen J.	Digital manufacturing-driven transformations of service supply chains for complex products	<i>Supply Chain Management</i>	The objectives of the study describe the hybrid solutions that combine traditional logistics, digital manufacturing and user operations that should be the consequence of adopting digital manufacturing	Review	N/A
133	2010	Dzopalic D., Zabović J., and Bradić-Martinović A.	Effective implementation of E-CRM strategy [Efektywnośćdrażniestategii E-CRM]	<i>Polish Journal of Management Studies</i>	The purpose of the study is to reveal the problem for the companies that are implementing the idea of electronic customer relationship management (CRM) in the future to increase the productivity and profits of the organization and thereby gain a competitive advantage lasting	Review	N/A
134	2006	Rai A., Patnayakumi R., and Seth N.	Firm performance impacts of digitally enabled supply chain integration capabilities	<i>MIS Quarterly: Management Information Systems</i>	The study reveals that higher-order capabilities and comprehensive IT infrastructure enable companies to deliver results	Review	N/A
135	2004	Capineri C., and Leimbach T.R.	Globalization, E-economy and trade	<i>Transport Reviews</i>	This study describes the current revolution is above all the result of profound changes in the distribution processes induced by the growth of e-commerce and by a production system built on networks of various kinds	Review	N/A

Table A1.

About the authors

Assunta Di Vaio, PhD, is Associate Professor of Business Administration at the University of Naples Parthenope, Italy, where she served as Deputy-Director of the Department of Law (2017–2022). Since 2013, she has served as Delegate for International Affairs of this Department. Since 2022, she serves as member of the Gender Equality Plan (GEP) Local Board of her university. Assunta is qualified as Full Professor in Business Administration. She holds her Ph.D. in Business Administration from Cà Foscari University, Italy. Her research fields include managerial accounting for the decision-making processes in the public and private sector, performance measurement, nonfinancial disclosure and reporting, sustainable accounting, intellectual capital and sustainable business models, UN 2030 Agenda, digital transformation, artificial intelligence, blockchain technology and sustainability transition. She has high knowledge about systematic literature reviews. These topics have been investigated in the port and cruise supply chain management. Her research has been published in leading management journals and top-tier peer-reviewed ABS-ranked journals like the *Journal of Business Research*, *Production, Planning and Control*, *International Journal of Information Management*, *Journal of Cleaner Production*, *Journal of Intellectual Capital*, *Meditari Accountancy Research*, *Energy Policy*, *Maritime Policy and Management*. She is editorial board member of international journals (e.g. *Journal of Knowledge Management*, *Journal of Intellectual Capital*, *Environment, Development and Sustainability*, *Asia-Pacific Journal of Business Administration*, *Frontiers in Artificial Intelligence – AI in Business*). She is peer reviewer for international journals edited by Elsevier, Emerald, Taylor and Francis, MDPI and Springer. She regularly participates as a speaker and chairs sessions at many international conferences. She has been visiting fellow of the UCL Quantitative and Applied Spatial Economic Research Laboratory (QASER) at the University College London (UK). Assunta is the Director of “Blue Shipping and Cruise Lab” (BSCLab), a research laboratory at the Department of Law, University of Naples Parthenope, Italy. Her name is listed in the World Scientist and University Rankings 2022. She ranked first in the Business Administration category of the University of Naples Parthenope and at 31st in Italy (Available at: <https://www.adscientificindex.com/scientist/assunta-di-vaio/1753164>). Assunta Di Vaio is the corresponding author and can be contacted at: susy.divaio@uniparthenope.it

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Nuwan Gunarathne, PhD, is Senior Lecturer at the University of Sri Jayewardenepura's Department of Accounting and Fellow Member of CMA, Sri Lanka. His teaching interests include management accounting, strategic management accounting and corporate sustainability. Nuwan is well-known speaker on sustainability, accounting and reporting for sustainability, waste management and integrated reporting. He has engaged in consultancy and research projects funded by the Chartered Institute of Management Accountants in the United Kingdom, UNESCO, the Ministry of Environment in Sri Lanka, the World Bank and the Blue Economy Cooperative Research Centre in Australia. His research has been published in various prestigious journals including *Accounting, Auditing and Accountability Journal*, *Journal of Cleaner Production*, *Resources, Conservation and Recycling*, *Business Strategy and the Environment*, *Managerial Auditing Journal* and *Accounting Education*. In 2014, he led the development of “Environmental Management Accounting (EMA) Guidelines for Sri Lankan Enterprises” with CMA Sri Lanka. Nuwan is also Committee Member of the Environmental and Sustainability Management Accounting Network (EMAN) Asia Pacific (AP) and country representative of the Sri Lanka Chapter of EMAN-AP.

Manjul Gupta, PhD, is Ryder MIS Eminent Scholar and Associate Professor of Information Systems at Florida International University. He holds a Ph.D. in Management Information Systems from Iowa State University. His research is focused on the role of national culture and organizational culture in a variety of technology-driven phenomena, such as bitcoin/blockchain adoption, artificial intelligence, big data and social networks. His research has appeared in several leading journals including *Management Information Systems Quarterly (MISQ)*, *Production and Operations Management (POM) Journal*, *Health Affairs* and *Information and Management*. Dr. Gupta consults organizations on how to assess national cultural nuances for launching products/services in international markets and helps organizations in evaluating their existing cultures and implementing changes according to their vision.

Idiano D'Adamo, PhD, is Associate Professor of Management Engineering at the Department of Computer, Control, and Management Engineering of Sapienza University of Rome, where he teaches Business Management, Economics of Technology and Management and Economics and Management of Energy Sources and Services. He received the Master of Science in Management Engineering in 2008 and the Ph.D. in Electrical and Information Engineering in 2012 from the University of L'Aquila. He worked in the University of Sheffield, the National Research Council of Italy, Politecnico di Milano, University of L'Aquila and Unitelma Sapienza – University of Rome. In August 2015, he obtained the Elsevier Atlas Price with a work published in *Renewable and Sustainable Energy Reviews*. Idiano was among 100,000 Top Scientists for a global ranking in 2019, 2020 and 2021 provided by Mendeley Data. He collaborates continuously with several journals: as Editor in Chief (*Sustainability*), as Associate Editor (*Global Journal of Flexible Systems Management*, *Frontiers in Sustainability*, *Environment Development and Sustainability*), as Editorial Board Member of *Scientific Reports* (a journal from the publishers of Nature), as Guest Editor (e.g. *Journal of Cleaner Production*, *Sustainable Production and Consumption*), as Reviewer for about 80 journals indexed in Scopus. During his academic career, Idiano D'Adamo published more than 100 papers in the Scopus database, reaching an h-index of 39. He has participated in scientific research projects (Horizon 2020 “Star ProBio”, Life “Force of the Future”), has collaborated with relevant national institutes (MATTM, CNBBSV, SVIMEZ) and has written for major national newspapers (Formiche, il Messaggero). His current research interests are bioeconomy, circular economy, green energy, sustainability and waste management.

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