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How AI rewires inter-firm collaboration: a review and collaboration rewiring model of disruptive digital technologies

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Abstract

Disruptive digital technologies, such as Artificial Intelligence (AI) and big data technologies, have profoundly reshaped businesses, impacting intra-firm processes, operations, and business models. Inter-firm collaboration serves as a fertile ground for disruptive digital technologies, while also fostering their refinement and implementation. Building on fragmented insights from diverse fields, our study conducts a systematic literature review to examine the bidirectional relationship between disruptive digital technologies and inter-firm collaboration. It is based on an analysis of 67 empirical studies published between 2010 and 2025 and lays the foundation for the 'collaboration rewiring model'. This model synthesizes prior research across three stages of the collaboration process: (1) the initiation phase, in which disruptive digital technologies act as catalysts for collaboration, (2) the collaboration phase, where they transform collaboration processes, governance mechanisms, and relational dynamics, and (3) the outcome phase in which they reshape the outcomes of collaboration. Our collaboration rewiring model puts forward that disruptive digital technologies have distinct, phase-specific and interrelated influences on inter-firm collaboration. Taken together, the collaboration rewiring model offers a structured account of how disruptive digital technologies influence inter-firm collaboration and points to promising avenues for future research.

Keywords Artificial intelligence · Digital business models · Disruptive digital technologies · Inter-firm collaboration · Systematic literature review

JEL Classification M10 · M15

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1 Introduction

An expanding body of literature has analyzed the transformational potential of digital technologies such as Cloud Computing (Jyoti and Efpraxia 2023), Internet of Things (IoT) (Mattos and Novais Filho 2024), Blockchain (Woolley 2023), and, in particular, the strongly evolving Artificial Intelligence (AI) use in firms (Davenport and Ronanki 2018; Enholm et al. 2022). These technologies commonly serve as catalysts of ongoing adjustment but also enable fundamental departures from prevailing trajectories (Choi et al. 2022). Inter-firm collaboration may foster both forms of change, even as these changes, in turn, alter how firms work together (Bouncken and Vogt 2025; He et al. 2020). Inter-firm collaboration describes coordination among firms where not all aspects are fully contractually defined but emerge via ongoing trustful coordination and power dynamics (Clauss and Bouncken 2019; Sobrero and Schrader 1998). It captures diverse forms of external relationships among firms, such as alliances, supply-chain relationships, and inter-organizational collaborations in vertical, lateral, and horizontal directions (Colombo 2003).

Digital technologies can mediate inter-firm collaboration in multiple ways, for instance, by offering new tools for partner selection and supporting their governance (Lumineau et al. 2021). Especially in innovation focused inter-firm collaboration (Clauss et al. 2026), digital technologies can emerge as their outcome (Pesch et al. 2021). Digital technologies, such as AI, Cloud Computing, IoT and Blockchain, crucially affect the input, processes, and outcomes of inter-firm collaboration (He et al. 2020). Digital technologies can also reconfigure the business models and the business model transformation of the collaborating firms (Bouncken and Fredrich 2022; Fredrich et al. 2022). However, due to technological diversity and the variety of inter-firm collaboration forms, existing studies show a high degree of complexity with respect to the technologies examined and the specific use-contexts in inter-firm collaboration. For example, research has investigated how firms apply different digital technologies at particular stages or for distinct purposes within inter-firm collaborations (Melander and Pazirandeh 2019; Schöggl et al. 2024), how they reshape specific collaboration processes (Adomako and Nguyen 2024; Kaur et al. 2019), influence the trust or contractual governance of inter-firm collaborations (Onjewu et al. 2023; Woolley 2023) or advance power asymmetries indirectly (Bouncken et al. 2020a, b; Fredrich et al. 2019). Some of these studies have mixed the incremental and radical change potential of digital technologies, while others do not clearly differentiate between the different digital technologies (Cepa and Schildt 2022; Pesch et al. 2021).

In addition, conceptual studies emphasized the disruptive potential of digital technologies for inter-firm collaboration, particularly in the context of coopetition (Bouncken and Vogt 2025; Reischauer and Hoffmann 2023). Prior unsystematic reviews show the literature remains fragmented and complex on how digital technologies disrupt inter-firm collaboration (Rusko 2019). Therefore, the question is, what overarching themes and mechanisms explain how disruptive digital technologies reshape inter-firm collaboration?

Accordingly, our study systematically reviews and integrates the literature to distill overarching themes and mechanisms through which disruptive digital technologies transform inter-firm collaboration. To generate insights into radical change and

potential substitution, we focus on the disruptive potential of digital technologies. For brevity, we refer to these as disruptive digital technologies throughout. We pursue our purpose through a systematic literature review (SLR), which enables us to provide a transparent, reproducible, and integrative synthesis that includes mapping early-stage, heterogeneous, and conceptually dispersed studies (Kraus et al. 2020, 2024). It departs from other forms, such as narrative reviews, which follow a more selective, unsystematic, and interpretive approach (Paré et al. 2015; Snyder 2019).

We analyzed the field and identified 67 empirical, peer-reviewed articles published from 2010 to February 2025. Our descriptive findings reveal substantial variation in the geographical and industrial contexts of prior studies, as well as in their methodological approaches and theoretical lenses. To synthesize the themes about the impact of disruptive digital technologies on inter-firm collaboration, we organize the literature along three stages of the collaboration process: the initiation stage, the collaboration stage, and the outcome stage. The initiation stage captures how disruptive digital technologies act as triggers that motivate or pressure firms to enter inter-firm collaboration. The collaboration phase focuses on how disruptive digital technologies transform collaboration processes and influence relational dynamics, governance modes, and collaboration strategies, thereby intensifying and mitigating collaboration tensions. Lastly, the outcome phase addresses how digital technologies influence the outcomes of inter-firm collaboration, particularly in regard to business model innovation, digital products and services, and the digital transformation of the collaborating firms. Together, the three stages enable a structured understanding of how disruptive digital technologies influence inter-firm collaboration, merged into the collaboration rewiring model.

Our contribution to the collaboration and digital technology literature is threefold. First, we systematically synthesize and structure the fragmented body of research on disruptive digital technologies and inter-firm collaboration, moving beyond early conceptual work and technology-specific or coopetition-focused analyses (Bouncken and Vogt 2025; Reischauer and Hoffmann 2023). Second, with the collaboration rewiring model, we introduce a conceptual framework that captures the technology-specific influences of disruptive digital technologies across the initiation, process and outcome stage of inter-firm collaboration. Third, by clarifying the concept of disruptive digital technologies and differentiating their distinct influences on inter-firm collaboration, we identify key gaps in existing research and derive a focused agenda for future research.

2 Theoretical background

2.1 Inter-firm collaboration

A huge base of literature has paid attention to the diverse forms of inter-firm collaboration (Powell et al. 1996; Rosenfeld 1996). Researchers have forwarded more or less overlapping terms to describe the specificity of these relationships, with common terms of alliances (Das and Teng 2000), strategic alliances (Lorange and Roos 1992), strategic technology alliances (Hagedoorn and Schakenraad 1994), vertical alliances

(Bouncken et al. 2016), intercompany collaboration (Hagedoorn and Schakenraad 1992), inter-firm relationships (Sobrero and Schrader 1998), and supply chain relationships (Subramani 2004). The rationales most commonly acknowledged for this surge in inter-firm collaboration center on combinations of risk sharing, access to new markets and technologies, faster time-to-market, and the pooling of complementary capabilities (Powell et al. 1996).

A very highly cited definition of inter-firm collaboration in management refers to strategic alliances as "voluntary arrangements between firms involving exchange, sharing, or co-development of products, technologies, or services" (Gulati 1998, p.293). Another prominent conceptualization shaping the relational view proposes synergistic benefits of inter-firm collaborations in that they can achieve relational rents as supernormal profits which are jointly created in an exchange relationship that cannot be generated by either firm in isolation (Dyer and Singh 1998). To achieve relational rents, complementary resources and capabilities, relation-specific assets, knowledge-sharing routines, and effective governance play a central role (Dyer and Singh 1998).

Fundamental to the understanding of inter-firm collaborations is the existence of trust as a governance mechanism, besides or substitutive to contracts and the ongoing coordination with high potentials of dynamics and power play (Clauss et al. 2026; Das and Teng 1998; Dyer and Chu 2003). Beyond its advantages on reducing transaction costs and supporting knowledge transfers (Das and Teng 1996), trust entails risks related to opportunism and knowledge loss (Dyer and Hatch 2006). Risks may decline over time such as by repeated ties and familiarity, but also arise or become more severe over time, as firms develop partner-specific competencies (Dyer and Hatch 2006) or power dynamics and asymmetries (Bouncken et al. 2020b; Hughes et al. 2018).

Inter-firm collaboration includes vertical directions, such as buyer-supplier relationships, vertical alliances, or supply chain relationships (Bouncken et al. 2016). Although firms may engage in joint development or open innovation, such collaborations typically revolve around trust-based (rather than fully contractual) governance of value-chain inputs and the associated and ongoing knowledge exchange between partner firms (Wong and Ngai 2022).

Inter-firm collaboration can also base upon horizontal relationships among competitors, traditionally referred to as coopetition, created from the terms competition and collaboration (Brandenburger and Nalebuff 1996). Although researchers disagree whether the two components have to be balanced (Bengtsson et al. 2010, 2016) or can vary in effect (Bouncken and Kraus 2013), a large literature base has analyzed its potentials, challenges, and dynamics (Bouncken and Fredrich 2025; Bouncken et al. 2015). Initially, researchers conceptualized coopetition in horizontal directions, but later extended it to vertical and lateral directions, especially as firms can have different positions in the value chain in different markets (Czakon et al. 2019; Fernandez et al. 2014). Furthermore, researchers considered specific aspects and firm characteristics (Kraus et al. 2019; Le Roy et al. 2021).

Research on inter-firm collaboration also extends to the dynamics of multi-partner alliances and networks (Bouncken and Fredrich 2016), moving beyond the typical dyadic relationship to encompass constellations of numerous participants within a

network that may enter and leave the wider collaboration. Here, the term network encompasses a wide array of specific collaboration types (Podolny and Page 1998). Open innovation further integrates thoughts of collaboration in which participants can be located in dyadic but also networks and may appear as end-users, not as firms (Randhawa et al. 2016; West and Bogers 2014). In addition, inter-firm collaboration can be categorized according to its main purpose or involved functions, such as innovation or R&D collaboration (Hurmelinna et al. 2005), marketing collaboration (Li et al. 2010), or for diverse internationalization purposes, such as international alliances or joint ventures (Parkhe 1998).

Taken together, inter-firm collaboration is a complex phenomenon encompassing a wide range of forms, relational configurations, and strategic purposes. Engaging comprehensively with all these subthemes, however, would go beyond the scope of this study. Our SLR adopts a broad and inclusive understanding of inter-firm collaboration, encompassing alliances, partnerships, networks, and coopetition. Hence, we capture the diverse manifestations of inter-firm collaboration while maintaining a coherent analytical focus on how disruptive digital technologies transform collaborative relationships across firms.

2.2 Disruptive digital technologies and artificial intelligence

Several studies, especially in information systems research, use the term "disruptive digital technology" to emphasize the transformative rather than incremental change potential of digital technologies. Instead of offering an explicit definition, many studies operationalize the concept by listing exemplary technologies, most commonly AI, IoT, Cloud Computing, and Blockchain (Agrawal et al. 2023; Choi et al. 2022; Filgueiras and Raymond 2023; Iranmanesh et al. 2022; Xue et al. 2025). For example, Choi et al. (2022, p.10) broadly characterize disruptive digital technologies as "ground-breaking disruptive technologies [which] are revolutionizing business operations". Similarly, Chang et al. (2022, p.1) refer to them as technologies that "offer innovation and enable us to change the way we work".

Building on these descriptions and the broader literature on digital technology and digital transformation (Hanelt et al. 2021; Kraus et al. 2022b), we define disruptive digital technologies as digital, data-driven, and highly scalable technologies that enable new forms of value creation and capture for firms by fundamentally transforming existing organizational processes, interactions and business models. Hence, based on existing research on disruptive digital technologies and our definition, this study focuses on AI, IoT, Cloud Computing, and Blockchain, but also encompasses their underlying and enabling sub-technologies such as machine learning.

Disruptive digital technologies have become key drivers of organizational change as they increasingly reshape how firms design processes and create value (Hanelt et al. 2021), and engage in inter-firm collaboration (He et al. 2020; Woolley 2023). Although the distinct technologies differ in their underlying architectures and use cases, they share the potential to bring highly radical changes to firms (Choi et al. 2022) and can support firm growth (Bouncken and Ratzmann 2026). AI fundamentally reshapes data-driven analysis and decision-making by uncovering patterns beyond human cognitive capacity (Davenport and Ronanki 2018). Cloud Comput-

ing profoundly transforms firms' access to data storage and computational resources by enabling scalable and on-demand computing (Battleson et al. 2016; Jyoti and Efpraxia 2023). Blockchain reshapes governance structures by enabling distributed and transparent coordination mechanisms (Lumineau et al. 2021; Woolley 2023). IoT transforms inter-firm connectivity by enabling continuous, real-time data exchange across organizational boundaries (da Silva and Cardoso 2024; Nicolescu et al. 2018).

Scholarly interest in digital technologies, most notably AI, has increased significantly over the past years (Cristofaro and Giardino 2025). Cloud-based services and user-friendly applications, such as OpenAI, have accelerated the diffusion of digital technologies from specialized research domains into mainstream business practice (Cristofaro and Giardino 2025). The growing accessibility of digital technologies has expanded firm adoption and prompted scholars to examine their organizational, strategic, and societal implications (Benbya et al. 2020; Cristofaro and Giardino 2025; Enholm et al. 2022). Firms, however, continue to struggle to fully capture business value from digital technologies despite their acknowledged promise for growth and profitability (Fountaine et al. 2019; Makarius et al. 2020).

3 Methodology

3.1 Review approach

Our study follows Tranfield et al. (2003) systematic literature review approach to comprehensively synthesize research on disruptive digital technologies and their impact on inter-firm collaboration. "An SLR is a review of an existing body of literature that follows a transparent and reproducible methodology in searching, assessing its quality and synthesizing it, with a high level of objectivity" (Kraus et al. 2020, p.1026). Hence, the SLR provides a systematic approach to generate an overview of the current state of the research in a field and to identify common themes, gaps, and potential research areas (Kraus et al. 2022a, 2024; Tranfield et al. 2003). Figure 1 summarizes the review process.

3.2 Review process

Building on prior research on inter-firm collaboration and disruptive digital technologies, we developed two keyword sets to construct the overall search string (Table 1). We used wildcards (*) to include plurals and variations on the phrases. For the disruptive digital technology keywords, we did not aim for an exhaustive list but captured technologies that the literature theoretically and empirically recognizes as core disruptive digital technologies (Agrawal et al. 2023; Chang et al. 2022; Choi et al. 2022; Filgueiras and Raymond 2023; Xue et al. 2025). We included broader digitalization-related terms such as "Industry 4.0", as many studies rely on umbrella terms at the level of titles, abstracts, or keywords, while elaborating on specific disruptive digital technologies only in the subsequent analysis (Chang et al. 2022; Choi et al. 2022). We excluded derivative technologies already covered by our core terms (e.g., digital

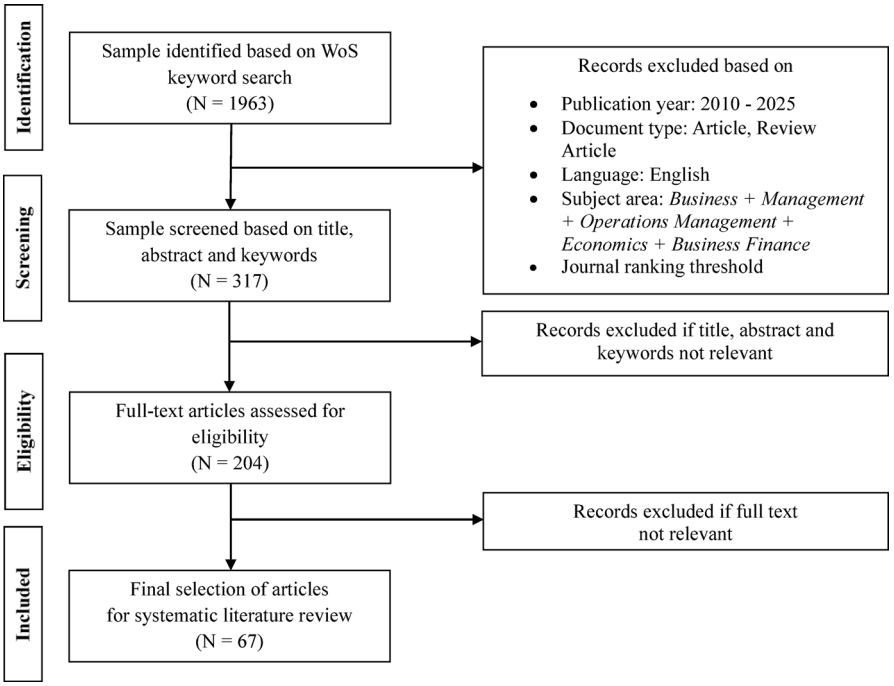

Fig. 1 Systematic review process

twins) because adding application-level variants would have inflated the search string without meaningfully improving the retrieval of relevant studies.

For collaboration-related keywords, we combined general descriptors and synonyms with the focal forms of alliances, partnerships, networks, and coopetition to capture the full spectrum of inter-firm collaboration without prematurely narrowing the search. We excluded specialized forms (e.g., open innovation, R&D consortia) because they are narrower subcategories and including them would have biased the search toward specific streams rather than providing a comprehensive overview of inter-firm collaboration in the context of disruptive digital technologies.

The electronic database Web of Science (WOS) Core Collection is the basis of data collection as it assembles the most important sources of scholarly articles, covering more than 34,000 journals across multiple disciplines. Recent systematic reviews on similar research topics also chose WOS as the preferred and sole database for their literature review (Ma et al. 2020; Rietveld and Schilling 2021), especially due to the database's inclusion of impact factors, providing a quality indication of the journals (Sauer and Seuring 2023). Further, this single-database approach allowed us to minimize duplicates.

Our protocol defines clear inclusion and exclusion criteria. We included only articles that combined both keyword sets in the title, abstract, or author keywords. Following prior reviews at the intersection of disruptive digital technologies and organizational issues, (Enholm et al. 2022) we limited the sample to publications from 2010 onward given the marked rise in firms' adoption of digital technologies

Table 1 Keywords used in the selection of papers

Thematic category	Keywords / search string
Inter-firm collaboration	"interorganizational collaboration" OR "inter-organizational collaboration" OR "interorganisational collaboration" OR "inter-organisational collaboration" OR "interfirm collaboration" OR "inter-firm collaboration" OR "strategic* alliance*" OR "strategic* partnership*" OR "firm* collab*" OR "organi* collab*" OR coopet* OR co-opet* OR "cooper* compet*" OR "co-oper* compet*" OR "collab* compet*" OR "compet* collab*" OR "inter-firm partnership" OR "interfirm partnership" OR "inter-organization* partnership*" OR "interorganization* partnership*" OR "inter-organisation* partnership*" OR "interorganisation* partnership*" OR "firm network*" OR "company network*" OR "organi* network*"
Disruptive digital technologies	"AI" OR "artificial intelligence" OR "big data" OR "machine learning" OR "deep learning" OR "computer vision" OR "gen* AI" OR "ChatGPT" OR "neural network*" OR "natural language processing" OR "NLP" OR "natural language generation" OR "robot*" OR "internet of things" OR "IoT" OR "blockchain" OR "artificial neutral network*" OR "Industry 4.0" OR "smart product*" OR "cloud computing" OR "virtual reality" OR "digital* technolog*" OR "digital* platform*" OR "digital transformation" OR digitalization OR digitization OR digitalisation OR digitisation

over the past decade (Cristofaro and Giardino 2025). We excluded non-English publications and limited the sample to peer-reviewed journal articles and review papers, following Kraus et al. (2020) in excluding grey literature (e.g., conference proceedings, dissertations, working papers) due to the lack of rigorous review processes.

Following systematic review guidance (Sauer and Seuring 2023; Webster and Watson 2002) we did not restrict the search to specific journals, as relevant work is dispersed across outlets. Instead, we limited subject areas to Business & Management, Operations Management, Economics, and Business Finance to exclude studies focused primarily on technical aspects of the disruptive digital technologies. Lastly, we included only articles published in journals ranked at least "2" in the Academic Journal Guide (AJG) ranking of the Chartered Association of Business Schools (ABS) and "C" level or higher in accordance to the German Academic Association for Business Research (VHB), following other SLR (Bouncken et al. 2015).

The initial search across titles, abstracts, and keywords yielded 1,963 articles. After applying inclusion and exclusion criteria, 317 remained. Screening titles and abstracts for relevance further reduced the sample to 204, excluding studies that used our keywords merely as catchwords (especially for widely cited technologies such as AI). In a second, full-text screening, we removed articles that only mentioned the keywords superficially or did not examine disruptive digital technologies in conjunc-

tion with inter-firm collaboration. This yielded a final sample of 67 articles, which is comprehensive yet manageable for a systematic review (Sauer and Seuring 2023). We then conducted a backward search by screening reference lists to ensure coverage.

In the final step, we reread all articles while engaging in in-depth coding. We built a structured datasheet to classify each study (e.g., publication year, journal, method, theory, and context) and summarized its key findings on how disruptive digital technologies affect inter-firm collaboration. We then coded how distinct technologies (1) initiate or trigger collaboration, (2) shape collaboration processes and dynamics, and (3) influence collaboration outcomes. Through iterative categorization, we identified recurring themes and consolidated them into an overarching framework.

4 Findings

4.1 Descriptive overview of the literature

4.1.1 Years of publication and journals

Since 2010, research at the intersection of inter-firm collaboration and disruptive digital technologies has grown markedly, although the overall volume of relevant publications remains modest (Fig. 2). Notably, 2023 shows an exceptionally strong increase in publications compared to the previous year. The 2023 peak likely reflects successive "waves" of digital technology research, in which technological advances, scholarly attention, and managerial practice unfold with temporal lags (Cristofaro and Giardino 2025). A fourth wave (2010–2020), characterized by big data and advances in AI, continues to unfold in the literature. More recently, research has increasingly shifted toward complex human-AI collaboration (Cristofaro and Giardino 2025).

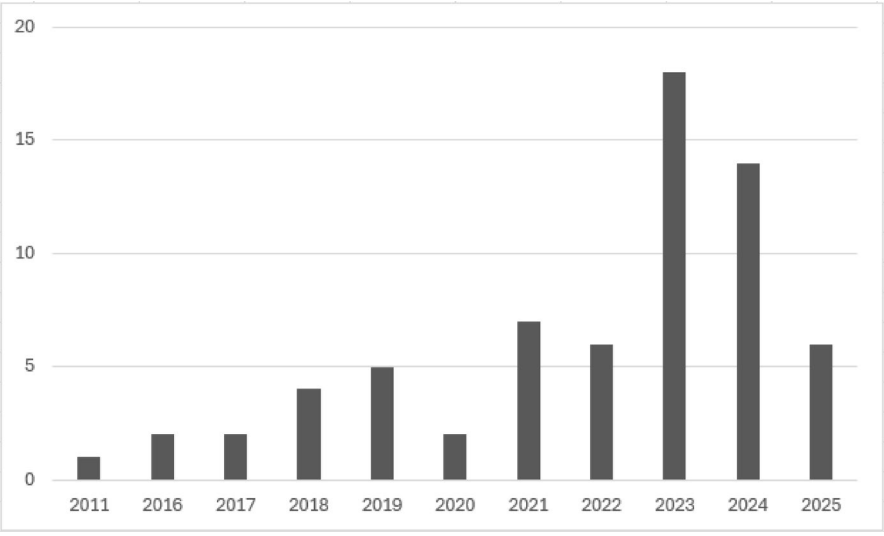

Fig. 2 Number of articles per year (until February 2025)

Articles were published across a wide range of journals, with prominent contributions from *Industrial Marketing Management* (7 publications), *Technovation* (6 publications), and the *Journal of Business Research* (4 publications). The sample also includes top-tier journals such as *Organization Science*, *Strategic Management Journal*, *Journal of Management Studies*, and *Research Policy*.

4.1.2 Methodological approaches

Studies under investigation here follow a variety of methodological approaches, as shown in Table 2. A vast majority opted for a qualitative approach of either single or multiple case studies (49%). The second largest portion of studies followed a quantitative approach (21%), using regression analyses, structural equation models or other quantitative methods. Few studies have combined qualitative and quantitative elements in their research (7%). Only a few longitudinal studies examined the impact of disruptive digital technologies on inter-firm collaboration (7%). Lastly, 7% of the papers were conceptual or theoretical, and 4% followed a mathematical or game-theoretical approach.

4.1.3 Contextual orientation

Most studies are situated in Europe (34%), followed by Asia (22%). With 3%, North America is underrepresented. Further, 18% of the studies chose multiple regions as a research context, while a quarter of them provided no information about their geographical context at all. Scholars focused on a variety of industries, most notably

Table 2 Descriptive statistics

Orientation	Description	Percentages (%)
Methods	Qualitative methods	49
	Quantitative methods	21
	Longitudinal design	7
	Mixed methods	7
	Conceptual papers	7
	Mathematical approach	4
	Other	5
Geographical region	Europe	34
	Asia	22
	North America	3
	Multiple regions	18
	n/a	23
Industry	Manufacturing	27
	IT / Software / Telecommunication	12
	Finance / Banking	4
	Agriculture / Forestry / Flowers	4
	Maritime industry	4
	Food and retail	1
	Multiple industries	28
	Other	11
	n/a	9

Manufacturing/Related Services (27%), IT/Software/Telecommunication (12%), Finance/Banking (4%), Agriculture/Forestry/Flowers (4%), the Maritime industry (4%), and Food/Retail (1%). A quarter of the studies covered multiple industries, while 9% provided no information at all. Given the significant contextual diversity regarding industry, we grouped some studies under the category "Other".

4.1.4 Theoretical embedding

Our sample shows a large theoretical diversity of the theories included, as well as studies in which theories are not even mentioned. A high variety of theories as seen in almost half of the cases indicates that the field is still in the process of developing or refining theories to explain the phenomenon of digital technologies in an inter-firm collaboration environment. The trend is also reflected in the large number of qualitative research studies. Within our sample, 13% of studies chose the dynamic capabilities theory (Teece et al. 1997) as a theoretical lens, followed by the paradox theory lens (Smith and Lewis 2011) and the resource-based view (Barney 1991). Further, 3% of sample studies combined multiple theoretical lenses such as the resource-based view with institutional theory (Dacin et al. 2007) and transaction cost economics (Williamson 1996).

4.1.5 Framing and conceptualization of disruptive digital technologies

An examination of how the reviewed studies localize disruptive digital technologies shows that 63% constituted them as central object of study, whereas 37% integrate them besides their focal topic. Moreover, we find that the studies only implicitly or vaguely define disruptive technologies (Holmström et al. 2024; Hwang and Kim 2022; Ma et al. 2024). Only a few studies provide explicit definitions (e.g., Matilda Bez and Chesbrough 2020), even when the technology constitutes the central object of study. More commonly, disruptive technologies appear as umbrella terms, without disentangling the distinct characteristics of AI, Cloud Computing, Blockchain, IoT, or other big data technologies (Hamann-Lohmer et al. 2023; Hwang and Kim 2022; Lee and Roh 2023; Reischauer et al. 2024; Smania et al. 2024). The above underscore the field's emergence.

4.2 Conceptual review and collaboration rewiring model

Our literature review reveals a variety of disruptive digital technologies and collaboration forms. Classifying the literature along technology or collaboration forms would have led to over-fragmentation. Instead, we structure our conceptual review following a collaboration stage-perspective. This perspective represents and further develops previous research that examined digital technologies with respect to how they (1) initiate or trigger collaboration, (2) shape the collaboration process itself, and (3) constitute outcomes of collaboration or influence its results to generate the collaboration rewiring model as condensed in Fig. 3. Tables 3 and 4 further advance existing research by moving beyond umbrella labels and differentiating the distinct technologies and their effects. Table 4 also indicates where each disruptive digital

technology is addressed in the findings section and how it is positioned in our conceptual framework.

4.2.1 Initiation phase

4.2.1.1 Disruptive digital technologies as catalysts

Our analysis shows that disruptive digital technologies can act as catalysts for inter-firm collaboration. Studies frequently observe this catalyst role through the rapid emergence of new, innovative firms whose business models are largely or entirely based on digital technologies. FinTechs illustrate such cases. Enabled by AI and Blockchain, they can disrupt elements of traditional finance and banking, while they often drive collaboration with incumbent actors such as banks (Drasch et al. 2018; Larsson et al. 2024; Shang and Chiu 2023). Rapidly emerging digital platforms, mostly based on Cloud Computing and IoT, prompt existing firms to respond, either by collaborating with competitors to develop a counteroffer (Geurts et al. 2022) or by collaborating with the new disruptive platform (Reischauer et al. 2024). Here, studies show inter-firm collaboration as a strategic response to platform-based disruption.

Disruptive digital technologies can compel firms to transform internal processes. Inter-firm collaboration becomes a vehicle for accessing complementary expertise, technologies, and implementation capabilities to compensate internal deficits (Ellingsen and Aasland 2019; Meena et al. 2024). Colovic et al. (2025) highlight the importance of collaboration with digital innovation intermediaries that accelerate the digital transition. Disruptive digital technologies also serve as a promising opportunity for firms to reach their objectives, such as sustainable performance (Lee and Roh 2023), green innovation (Melander and Pazirandeh 2019) or twin (digital and green) transition (Zoppelletto et al. 2025), increased productivity and technical efficiency (Hwang and Kim 2022), or business model innovation (Basole and Park 2018; Jyoti and Efpraxia 2023; Mattos and Novais Filho 2024).

4.2.1.2 Disruptive digital technologies shaping collaboration content

Disruptive digital technologies redefine the focal objective and content of inter-firm collaboration. Firms increasingly collaborate *on* digital technologies, including their exploration, development, testing, and governance. For example, "experimental networks" form to test the business viability of AI-based solutions, as illustrated in studies on autonomous, driverless buses (Engwall et al. 2021). Additionally, technology-specific consortia arise, as organizations in a collaborative effort aim to establish a framework and future agenda for these digital technologies. By forming dedicated consortia (e.g. AI or Blockchain Consortia), firms harness the technology's potential to jointly address future crises or to develop and deploy the technologies in a responsible manner (Hacker et al. 2023; Matilda Bez and Chesbrough 2020).

Table 3 Managerial themes and disruptive digital technologies

Managerial theme	Disruptive digital technology	Impact of disruptive digital technology	Collaboration form	Studies
Information processing capability & decision-making efficiency	Artificial intelligence	Automates large-scale data analysis, supports predictive insights and enables complex decision-making by uncovering patterns beyond human recognition	Inter-firm collaboration, coopetition, networks, ecosystems, strategic alliances	Das (2023); Kaur et al. (2019); Moskowitz et al. (2011); Niu et al. (2025); Rusko (2019); Woolley (2023)
	Big data technologies/analytics		Inter-firm collaboration, coopetition, networks, ecosystems	Cepa (2021); Cepa and Schildt (2022); Melander and Pazirandeh (2019); Sadic et al. (2018); Shamout (2023); Xin et al. (2023)
Knowledge & information sharing	Artificial intelligence	Generates new knowledge by analyzing and synthesizing distributed data, facilitates the matching of relevant information across firms, improves the relevance and timeliness of shared knowledge	Inter-firm collaboration, coopetition, networks, ecosystems	Holmström et al. (2024); Moskowitz et al. (2011); Woolley (2023)
	Blockchain	Ensures secure, transparent, and traceable knowledge exchange, thereby creating trusted data environments that safeguard integrity and reliability of information flows across firm	Inter-firm collaboration, coopetition, networks, ecosystems	Das (2023); Huang and Zhou (2024); Lumineau et al. (2021); Onjewu et al. (2023); Schöggl (2024); Woolley (2023)

Table 3 (continued)

Managerial theme	Disruptive digital technology	Impact of disruptive digital technology	Collaboration form	Studies
	Cloud computing/digital platforms	Provides scalable, flexible and easily accessible storage and computing resources, enabling firms to share, process, and integrate knowledge and information across firm boundaries more efficiently	Inter-firm collaboration, coopetition, networks, ecosystems, strategic alliances	Basole and Park (2018); Battleson et al. (2016); Bouncken and Barwinski (2021); Dalenogare et al. (2023); Jyoti and Efpraxia (2023); Liu et al. (2016); Loukis et al. (2017)
	Internet of things	Enables continuous real-time data flows and transparency across firms, improving situational awareness and supporting shared understanding in collaborative activities	Inter-firm collaboration, coopetition, networks, ecosystems, supply chain collaboration	da Silva and Cardoso (2024); Miehé et al. (2023); Mirzaei et al. (2025)
Strategy & power dynamics	Artificial intelligence	Shifts power dynamics by empowering firms with superior access to data and capabilities, allowing them to influence strategic directions and priorities	Coopetition, networks, ecosystems	Kamalaldin et al. (2021); Larsson et al. (2024); Ma et al. (2024); Niu et al. (2025)
	Internet of things	Creates power asymmetries in collaborations by privileging firms with technological expertise, as technological knowledge becomes a central strategic resource	Networks, ecosystems	Miehé et al. (2023)

Table 3 (continued)

Managerial theme	Disruptive digital technology	Impact of disruptive digital technology	Collaboration form	Studies
	Cloud computing/digital platforms	Provide shared infrastructures to experiment with and implement collaboration strategies, enabling partners to maximize joint value creation and achieve competitive advantage through platform orchestration	Inter-firm collaboration, coopetition, networks, ecosystems	Geurts et al. (2022); Khanagha et al. (2022)
	Disruptive digital technologies*		Inter-firm collaboration, coopetition, networks, ecosystems, supply chain collaboration	Dalenogare et al. (2023); Drasch et al. (2018); Hamann-Lohmer et al. (2023); Reischauer et al. (2024); Shang and Chiu (2023)
Tensions	Big data technologies/analytics	Creates tension if firms do not benefit equally or at the same pace from technology	Inter-firm collaboration	Cepa (2021); Cepa and Schildt (2022)
	Cloud computing/digital platforms	Acts as coordination mechanism and infrastructure that stabilizes collaboration and regulates value distribution, while managing openness, control, and dependencies	Inter-firm collaboration, coopetition, networks, ecosystems	Geurts et al. (2022); Hummel et al. (2025); Khanagha et al. (2022); Smania et al. (2024); Wei et al. (2022); Zhang et al. (2021)
	Internet of things	Provides the contextual setting in which collaboration tensions can emerge	Networks, ecosystems	Miehé et al. (2023)
	Disruptive digital technologies*		Coopetition, networks, ecosystems, supply chain collaboration	Gebauer et al. (2020); Hamann-Lohmer et al. (2023); Smania et al. (2024); Tóth et al. (2022)

Table 3 (continued)

Managerial theme	Disruptive digital technology	Impact of disruptive digital technology	Collaboration form	Studies
Governance & trust	Artificial intelligence, blockchain	Enhances transparency and accountability, thereby reducing information asymmetries and fostering trust through decentralization and data integrity	Inter-firm collaboration, coopetition, networks, ecosystems	Das (2023); Huang and Zhou (2024); Lumineau et al. (2021); Onjewu et al. (2023); Woolley (2023)
	Big data technologies/analytics	Triggers governance challenges by reshaping data access, privacy and regulation, requiring new forms of governance mechanisms in collaborations	Inter-firm collaboration	van den Broek and van Veenstra (2018)
	Internet of things	Increases transparency and trust among actors through real-time monitoring and control	Supply chain collaboration	Mirzaei et al. (2025)

*The category "Disruptive Digital Technologies (umbrella term)" is used as an umbrella term in the respective studies. The authors examine multiple technologies (typically including AI, Cloud Computing, Blockchain, IoT) without clearly disentangling their distinct impact

4.2.2 Collaboration phase

4.2.2.1 Disruptive digital technologies as efficiency toolkit

A large fraction of studies adopt a process perspective, asking how disruptive digital technologies reshape the operational processes underpinning inter-firm collaboration while considering inter-partner knowledge and information exchange, information-processing capabilities, and decision-support for decision-making. Efficiency and optimization emerge as central themes, highlighting how collaboration becomes more effective via digital technologies.

Digital technologies influence knowledge and information sharing processes between partners in different ways (see Table 3). Cloud Computing and cloud-based digital platforms provide scalable and flexible infrastructures for sharing, integrating, and storing information across firm boundaries (Basole and Park 2018; Jyoti and Efpraxia 2023; Loukis et al. 2017), thereby facilitating both explicit and tacit knowledge exchanges between partners (Bouncken and Barwinski 2021). IoT enables continuous real-time data flows and operational transparency (da Silva and Cardoso 2024; Mirzaei et al. 2025), whereas Blockchain ensures secure, transparent, and

traceable knowledge exchange, safeguarding the integrity and reliability of information flows (Huang and Zhou 2024; Lumineau et al. 2021; Woolley 2023). However, recent studies also highlight technical, organizational, and regulatory obstacles to data sharing in inter-firm networks that can limit the effectiveness of disruptive digital technologies for inter-firm collaboration (Holmström et al. 2024).

AI and big data technologies, compared to other disruptive digital technologies, play a particularly prominent role for information processing and decision-making support in inter-firm collaboration (see Table 3). AI and big data technologies support decision-making due to their superior information-processing capabilities by uncovering patterns in vast amounts of data beyond human recognition (Kaur et al. 2019; Moskowitz et al. 2011; Rusko 2019; Sadic et al. 2018). Support vector machines, for instance, have the capability to dynamically model and analyze decision-making processes in collaboration settings (Moskowitz et al. 2011), and AI-based quality control systems optimize information processing and decision-making through computer vision (Niu et al. 2025).

4.2.2.2 Enhancing and constraining effects of disruptive digital technologies

Closely linked to the previous discussion, scholars specifically explore the moderating effect of disruptive digital technologies, suggesting that their influence on inter-firm collaboration and its outcomes often operates indirectly (Schöggl et al. 2024). Disruptive digital technologies, for instance, enhance the effectiveness of inter-firm (supply) management (Dubey et al. 2024). They also amplify the positive effects of inter-firm collaboration on circular economy implementation (Schöggl et al. 2024).

Further, collaboration between competitors yields higher performance when firms possess strong big data analytical capabilities (Shamout 2023). Big data analytics can shape collaboration composition by identifying, within existing partner networks, the configuration that maximizes joint value creation (Sadic et al. 2018). Big data analytics, however, do not impact all forms of collaboration equally within an ecosystem. They foster cooperation in innovation ecosystems, but exert no direct effect on the link between competition in such ecosystems and resource orchestration (Xin et al. 2023).

4.2.2.3 Disruptive digital technologies as a platform for collaboration

Disruptive digital technologies, often indicated by digital connectivity-technology such as Cloud Computing, can serve as a platform for inter-firm collaboration, enabling improved collaboration through their technological infrastructure (Basole and Park 2018; Liu et al. 2016; Loukis et al. 2017). Digital twins, for instance, shape the technical site of collaboration in the manufacturing context (Rantala et al. 2023). Their digital infrastructure allows the integration of various actors (Miehé et al. 2023) and facilitates digital collaboration with other firms (Rusko 2019; Suuronen et al. 2024) and as such opens new opportunities to expand business, particularly for smaller firms (Das 2023).

Multi-sided digital platforms link multiple actors across ecosystems, shifting the logic of value creation to the network and ecosystem level (Rantala et al. 2023). The

Table 4 Collaboration forms and disruptive digital technologies

Collaboration form	Managerial theme	Disruptive digital technology	Conceptual review	Studies
Inter-firm collaboration	Innovation management, business model innovation	Cloud computing/digital platforms	Platform, tensions, toolkit	Hummel et al. (2025); Loukis et al. (2017)
		Big data technologies/analytics	Governance	van den Broek and van Veenstra (2018)
		Internet of Things, Big data technologies/analytics, Blockchain	Toolkit	Schöggl et al. (2024)
		Disruptive digital technologies*	Catalyst, strategy	Drasch et al. (2018); Zoppelletto et al. (2025)
	Performance management	Cloud Computing/digital platforms	Platform	Battleson et al. (2016); Liu et al. (2016)
	Technology transfer	Disruptive digital technologies*	Toolkit	Adomako and Nguyen (2024)
	Crisis management, resilience	Artificial Intelligence (Machine Learning)	Toolkit	Moskowitz et al. (2011)
Strategic alliances	Innovation management, business model innovation	Artificial Intelligence (Cognitive Computing)	Toolkit	Kaur et al. (2019)
		Cloud Computing/digital platforms	Catalyst, outcome, toolkit	Jyoti and Efpraxia (2023)
		Additive Manufacturing	Outcome	Friedrich et al. (2022)
	Performance management	Disruptive digital technologies*	Catalyst	Hwang and Kim (2022)
	Crisis management, resilience	Disruptive digital technologies*	Catalyst, enhancer	Dubey et al. (2024)

Table 4 (continued)

Collaboration form	Managerial theme	Disruptive digital technology	Conceptual review	Studies
Networks & ecosystems	Innovation management, business model innovation	Artificial Intelligence	Focal objective, strategy	Dalenogare et al. (2023); Das (2023); Engwall et al. (2021)
		Internet of Things, Cloud Computing/digital platforms	Catalyst, outcome, platform, strategy, tensions	Basole and Park (2018); Gebauer et al. (2020); Mattos and Novais Filho (2024); Miehé et al. (2023); Rantala et al. (2023); Smania et al. (2024)
		Disruptive digital technologies*	Governance, platform	Suuronen et al. (2024); Wei et al. (2022)
		Big data technologies/analytics	Catalyst	Melander and Pazirandeh (2019)
	Digital transformation, resilience	Disruptive digital technologies*	Catalyst	Colovic et al. (2025); Ellingsen and Aasland (2019)

Table 4 (continued)

Collaboration form	Managerial theme	Disruptive digital technology	Conceptual review	Studies
Coopetition	Innovation management, value co-creation & capture	Artificial Intelligence, Blockchain	Catalyst, governance, toolkit	Larsson et al. (2024); Woolley (2023)
		Cloud Computing/digital platforms	Catalyst, outcome, strategy, tensions	Geurts et al. (2022); Khanagha et al. (2022); Liu et al. (2024); Shang and Chiu (2023); Zhang et al. (2021)
		Big data technologies/analytics	Enhancer	Xin et al. (2023)
		Disruptive digital technologies*	Catalyst, tensions	Lee and Roh (2023); Tóth et al. (2022)
	Data/resource/knowledge sharing	Artificial Intelligence	Strategy	Kamal-aldin et al. (2021); Ma et al. (2024)
		Internet of Things	Enhancer, toolkit	da Silva and Cardoso (2024)
	Crisis management, resilience	Artificial Intelligence	Focal objective	Matilda Bez and Chesbrough (2020)
Supply chain collaboration	Value chain efficiency, knowledge transfer & coordination	Disruptive digital technologies*	Governance, platform, tensions, toolkit	Hamann-Lohmer et al. (2023); Mirzaei et al. (2025)
		Blockchain	Governance, tensions, focal objective	Hacker et al. (2023)

*The category "Disruptive Digital Technologies (umbrella term)" is used as an umbrella term in the respective studies. The authors examine multiple technologies (typically including AI, Cloud Computing, Blockchain, IoT) without clearly disentangling their distinct impact

digital platform is a central coordination mechanism that enables firms to collaborate especially within dynamic and diverse networks (Wei et al. 2022). Platform providers can deliberately shape and orchestrate collaborative networks through the platform (Wei et al. 2019). Further, through seamless and fluid integration via Cloud Computing, firms can rapidly onboard new partners and respond flexibly to evolving collaboration requirements (Liu et al. 2016), which supports dynamic capabilities (Battleson et al. 2016). As such, disruptive digital technologies not only enable collaboration but also rely on it: they deliver value only when actors across the network are willing to collaborate (Mirzaei et al. 2025).

4.2.2.4 Disruptive digital technologies' impact on governance and trust

Scholars have examined how disruptive digital technologies, especially AI and Blockchain, reshape inter-firm collaboration governance, while these technologies enable, and may also necessitate, new governance mechanisms (van den Broek and van Veenstra 2018). Some studies focus on governance shifts, whereas others foreground the technology and derive its governance implications.

Disruptive digital technologies can reduce the need for relational governance in ongoing collaboration, yet relational governance remains essential during the collaboration initiation stage in which trust is needed to embark on the digital transformation journey together (Hamann-Lohmer et al. 2023). Contractual governance, when augmented for instance by AI-driven smart contracts, can automate processes, reduce transaction costs, and establish clear rules in business relationships. Still, as not every detail can be specified, trust between collaboration partners remains critical for the effectiveness of smart contracts (Das 2023).

In a technology-centric perspective, studies explain how governance changes in response to Blockchain and AI. The technologies add governance that coexists with transactional and relational mechanisms, especially in multi-competitor coopetition (Woolley 2023). "Federated learning" as a specific form of AI technology enables collaboration across multiple devices and organizations without the need to directly share data (Woolley 2023). Further, Blockchain-based governance can interact with traditional governance mechanisms, such as contractual and trust-based governance, in both substitutive and complementary ways (Lumineau et al. 2021).

Blockchain can reduce classic principal-agent governance problems (e.g., opportunistic behavior, information asymmetry, and trust issues) (Onjewu et al. 2023) by providing a stable framework without third-party oversight or heavy reliance on interpersonal trust (Hacker et al. 2023). Technology enhances transparency and accountability, thereby mitigating information asymmetries and inequalities in power dynamics. Further, Blockchain decentralizes governance and authority, which reduces tensions between collective value creation and individual value appropriation, which are particularly pronounced in multi-competitor collaborations (Woolley 2023). Blockchain governance may reduce structural tensions by fostering a data-induced rationality that shapes the mindset and actions of collaborating actors (Cepa and Schildt 2022).

Despite their potential for inter-firm collaboration, Blockchain-based collaborations require regulation and long-term commitment from the firms. Blockchain

embeds governance rules and inter-firm dependencies early on in a shared digital record, which makes initial collaboration decisions difficult to reverse (Hacker et al. 2023). Furthermore, firms design Blockchain-based collaborations as ongoing collaborative arrangements in which relational and technological interdependencies continuously evolve (Hacker et al. 2023).

4.2.2.5 Disruptive digital technologies' impact on tensions

Beyond their merits, disruptive digital technologies can intensify tensions in inter-firm collaboration. For instance, big data technologies trigger learning races among collaborators, as firms feel pressured to capture benefits at the same pace and scale as their partners (Cepa 2021). Similarly, smaller firms may experience increased pressure to adopt disruptive digital technologies to avoid jeopardizing existing partnerships (Hamann-Lohmer et al. 2023). At the same time, disruptive digital technologies can reduce or minimize tensions in inter-firm collaboration (Wei et al. 2022) because they orchestrate networks by defining access rights, regulating participation, and shaping the nature of interactions among partners (Wei et al. 2019).

Disruptive digital technologies often constitute the setting in which collaboration tensions manifest. Examples include digital servitization ecosystems, where conflicts emerge during the co-development of digital offerings (Smania et al. 2024; Tóth et al. 2022) or shared Cloud Computing infrastructures (Hummel et al. 2025). Likewise, in digital platform contexts, tensions frequently arise from imbalances between value creation and value appropriation or from unequal "win-win" situations among partners (Geurts et al. 2022; Khanagha et al. 2022; Zhang et al. 2021).

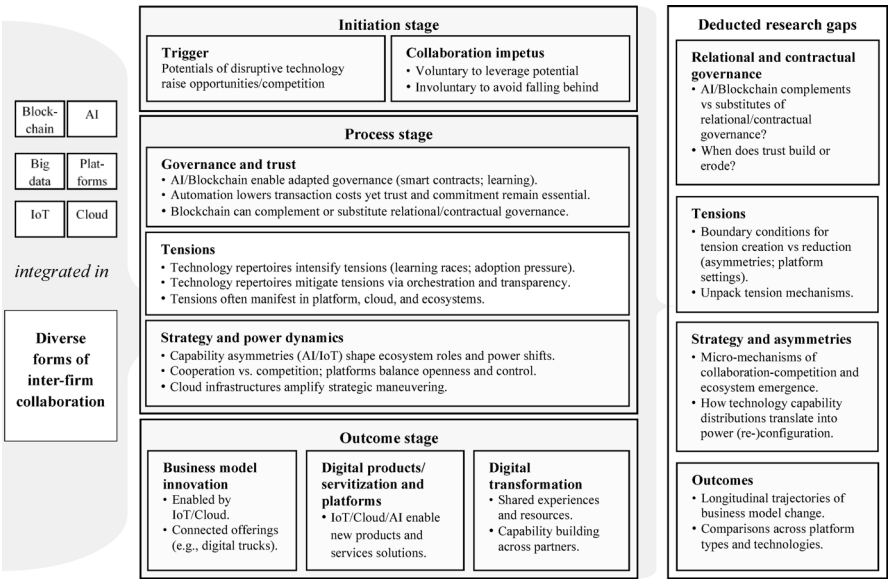

Fig. 3 Collaboration rewiring model

4.2.2.6 Disruptive digital technologies' impact on strategy and power dynamics

When key technological capabilities, such as specific AI expertise, reside in competing firms, firms can initiate inter-firm collaboration in the form of coopetition (Ma et al. 2024; Reischauer et al. 2024). In a digital platform context, incumbent firms can, for example, strategically address the degree of cooperation and competition in their arrangement with digital disruptors across different phases of the collaboration (Reischauer et al. 2024). In earlier phases, greater cooperation enables incumbent firms to access technological knowledge and resources from the digital disruptor, whereas in later phases, incumbent firms allow competitive elements to emerge by which they aim to mitigate dependency risks and retain strategic autonomy (Reischauer et al. 2024). Hence, firms may strategically use coopetition for a limited period before reverting to direct competition.

Temporally and functionally separating cooperative and competitive activities in collaborative settings can stabilize tensions and power dynamics arising from unequal value creation and appropriation within ecosystems (Geurts et al. 2022). It also helps incumbent firms to maintain legitimacy within their ecosystem while establishing their own focal digital platform (Khanagha et al. 2022).

Coopetition arrangements are particularly prone to power asymmetries and dynamics when one partner possesses superior technological capabilities or expertise (Fredrich et al. 2019; Kamalaldin et al. 2021; Ma et al. 2024). In such settings, technological capabilities shape whether firms assume a leading role in coordinating the collaboration or a follower role focused on contributing complementary expertise or protecting proprietary knowledge (Kamalaldin et al. 2021).

4.2.3 Outcome phase

4.2.3.1 Disruptive digital technologies on collaboration outcomes

Previous literature delivers further insights about how disruptive digital technologies influence the results of inter-firm collaboration, such as in terms of digital product- or process-innovation. Table 4 shows key managerial themes (e.g., innovation management, performance management, crisis management) in the outcome perspective.

Outcomes of inter-firm collaboration with technology providers include not only technology or process solutions but also new business models (Friedrich et al. 2022). In particular, IoT and Cloud Computing enable business model innovation (e.g., Gebauer et al. 2020; Jyoti and Efpraxia 2023; Mattos and Novais Filho 2024). Digital trucks, for instance, provide real-time connectivity between vehicles, drivers, fleets, and dealer networks, while supporting data-driven services such as driver training and advanced analytics (Mattos and Novais Filho 2024). Inter-firm collaboration also fosters digital servitization through IoT, Cloud Computing and AI, as seen in connected cars (Reischauer et al. 2024; Shang and Chiu 2023) or digital platform offerings (Khanagha et al. 2022; Trabucchi et al. 2023). Lastly, an outcome of inter-firm collaboration is the participating firms' digital transformation, as firms share tech-

nological knowledge and resources with one another (Ellingsen and Aasland 2019; Meena et al. 2024).

5 Discussion

The collaboration rewiring model as depicted in Fig. 3 synthesizes our findings into a stage-based framework of how disruptive digital technologies transform inter-firm collaboration. The collaboration rewiring model nuances how disruptive digital technologies can trigger collaboration, reshape governance and relational dynamics during collaboration, and ultimately influence outcomes such as business model innovation, digital offerings, and broader digital transformation. The collaboration rewiring model captures technology effects across the collaboration lifecycle and highlights resulting research gaps.

In the initiation phase, disruptive digital technologies trigger or catalyze inter-firm collaboration. These technologies emerge as an external force in the market, gradually or suddenly, prompting firms to collaborate either voluntarily, when they seek to leverage the technology's potential (Basole and Park 2018; Jyoti and Efpraxia 2023; Mattos and Novais Filho 2024; Melander and Pazirandeh 2019), or involuntarily, when collaboration becomes a necessary response to avoid falling behind (Geurts et al. 2022; Reischauer et al. 2024). Digital technologies can initiate collaboration and redefine its content, becoming the focal object around which firms organize joint activities, such as joint experimentation in "experimental networks" (Engwall et al. 2021).

In the collaboration stage, disruptive digital technologies can reshape inter-firm collaboration processes, particularly their information and knowledge exchange, data processing and sharing, and decision-making. AI and big data technologies enhance efficiency and effectiveness of collaboration processes due to their superior information-processing capabilities (Kaur et al. 2019; Moskowitz et al. 2011; Rusko 2019; Sadic et al. 2018). Recent work points to potentially peripheral or even counterproductive effects of these technologies, which scholars have largely overlooked so far (Xin et al. 2023).

Disruptive digital technologies coordinate inter-firm collaboration by structuring interactions through algorithms, standardized interfaces, and digital platform governance mechanisms (Wei et al. 2022), enabling both dyadic and multi-sided collaborations in dynamic ecosystems (Rantala et al. 2023). Blockchain, with its decentralized and transparent architecture, can function as a novel governance form that coexists with traditional governance mechanisms in substitutive or complementary ways (Hacker et al. 2023; Lumineau et al. 2021; Onjewu et al. 2023; Woolley 2023).

Research further highlights the relational implications of disruptive digital technologies for inter-firm collaboration. Disruptive digital technologies can generate tensions between partners (Cepa 2021), but also reduce or resolve tensions in collaborative settings (Cepa and Schildt 2022; Wei et al. 2022). When critical technologies or expertise resides in otherwise competing firms, they may collaborate, forming coopetition relationships. Such arrangements are particularly prone to power asymmetries and shifting dynamics, for example when one partner possesses superior tech-

nological capabilities (Fredrich et al. 2019; Kamalaldin et al. 2021; Ma et al. 2024). Competing firms may enter coopetition arrangements temporarily and later exit the arrangement, reverting to direct competition to manage the power asymmetries and shifting dynamics associated with disruptive digital technologies. Accordingly, firms use alternating collaboration-competition strategies (Liu et al. 2024; Reischauer et al. 2024).

Finally, disruptive digital technologies reshape the outcome of inter-firm collaboration, including digital transformation of the collaborating partners as a result. Our review shows that collaborations frequently lead to the joint development of technology-based offerings, or the digitalization of existing products and services (Friedrich et al. 2022; Khanagha et al. 2022; Mattos and Novais Filho 2024). Taken together, these findings underscore that disruptive digital technologies have the potential to transform inter-firm collaboration across the whole collaboration process.

5.1 Theoretical contribution

Our study provides a set of contributions to theory. First, we move beyond early conceptual work and narrative reviews that have largely focused on coopetition as a distinct form of inter-firm collaboration and have either concentrated on single technologies, most notably AI, or subsumed multiple disruptive digital technologies under broad umbrella terms (Bouncken and Vogt 2025; Reischauer and Hoffmann 2023; Rusko 2019). Rather than privileging coopetition, we deliberately broaden our analytical lens to inter-firm collaboration more generally. At the same time, we go beyond technologically undifferentiated studies by systematically disentangling the distinct influences of specific disruptive digital technologies, such as AI, Blockchain, IoT, and Cloud Computing, on inter-firm collaboration. By applying a systematic and structured literature review approach, we provide a collaboration rewiring model that moves beyond selective or unstructured prior work and contributes to the theoretical consolidation of this emerging research field.

Second, we address the persistent conceptual ambiguity surrounding disruptive digital technologies by proposing an explicit and theoretically grounded definition of disruptive digital technologies. Our definition enhances conceptual clarity and establishes a more consistent foundation for future empirical and theoretical research.

Third, our collaboration rewiring model conceptualizes disruptive digital technologies' impact through a process-oriented framework that distinguishes between the initiation, process, and outcome stages of inter-firm collaboration. We highlight digital technologies' transformative role across the collaboration process, from triggering collaboration, to reshaping collaboration processes, governance mechanisms, and relational dynamics, and ultimately influencing outcomes. Importantly, rather than subsuming all digital technologies under a single umbrella term, our analysis deliberately differentiates their technology-specific influences, for example, how Cloud Computing and IoT enable and transform inter-firm collaboration, Blockchain introduces new forms of governance, or AI reshapes information processing and decision-making, as well as power dynamics between firms.

5.2 Practical implications

Our findings yield important implications for firms, managers, and policy-makers. First, managers should recognize that disruptive digital technologies are not only tools for efficiency but can fundamentally reshape inter-firm collaboration and its governance, as well as the underlying tensions and power dynamics. Firms need to prepare for both opportunities and risks. Second, our framework can guide decision-makers in identifying where and how to leverage specific technologies. Cloud Computing based digital platforms can be used to flexibly integrate new partners and coordinate multi-actor ecosystems. Blockchain can be applied to facilitate trust, automate transactions, and reduce opportunism in collaborative governance, though they also raise challenges of long-term commitment and regulation. AI and big data analytics can support joint decision-making, partner selection, and value creation, but also create dependency risks when capabilities are unevenly distributed among partners. Third, managers should proactively build digital collaboration capabilities alongside technical adoption. This includes developing skills to manage technology-enabled governance mechanisms (e.g., smart contracts), balancing openness and control on digital platforms, and addressing tensions or power imbalances that may arise when the collaborating firms possess different technological expertise. Lastly, policy-makers and industry associations should foster collaboration infrastructures such as technology-specific consortia or industry-wide data spaces, while also setting standards for security and data governance. By doing so, they can reduce entry barriers for smaller, less influential firms, ensure fair participation, and prevent the concentration of power in the hands of a few dominant technology providers.

6 Future research implications

Given the strongly growing research field, we see a fundamental need for more studies examining the distinct impact of disruptive digital technologies on inter-firm collaboration to establish a solid foundation and increase the validity and generalizability of research. Our literature analysis reveals that more than half of the studies are either qualitative or conceptual in nature. As such, we suggest more effort in theory testing. We encourage, based on He et al. (2020) that existing theoretical lenses in collaboration research need to be critically examined and, if necessary, further developed in the context of the ongoing digital transformation. This finding further underscores the early stage of research in this area and emphasizes the need for more quantitative or mixed-method studies to test theories on larger samples. Further, since inter-firm collaborations often span many years, longitudinal studies are critical here.

Our conceptual framework provides the basis for a process-oriented view of inter-firm collaboration that explicitly captures the disruptive impact of digital technologies on the three collaboration phases (initiation, process and outcome phase). Rather than treating collaboration as a single, undifferentiated phenomenon, future studies can build on this framework and deliberately focus on the specific parts of the collaboration process. Such a focused approach allows scholars to develop greater depth within individual phases, for example by examining how disruptive digital technolo-

gies shape collaboration initiation decisions, reconfigure interaction and coordination during collaboration, or influence post-collaboration consequences.

Potential future research areas and research questions that have emerged from our conceptual model are proposed in Table 5. Each theme gives rise to a multitude of sub-topics and potential research questions. For instance, research focusing on the initiation phase could investigate how firms' perception of digital disruption influences the structure, governance, and dynamics of inter-firm collaboration. Within the collaboration phase, future studies may examine how specific governance mechanisms, for instance, AI and Blockchain-based arrangements, compare to or interact with traditional governance modes in terms of fostering trust, transparency, and collaboration. Further, future research could explore how specifically AI technologies create tensions like learning races or resource conflicts in inter-firm collaborations.

Beyond these themes, we identify several additional avenues for future research. First, while our review deliberately disentangles the distinct effects of individual disruptive digital technologies, future research could examine their joint or combined effects. For example, scholars may investigate which combinations of technologies (for instance AI and Cloud Computing, or IoT and Blockchain) are particularly ben-

Table 5 Possible dimensions and topics in future research

Theme	Topic	Potential research questions
Catalyst	Collaboration as a critical survival mechanism for incumbent firms	(1) How does the emergence of digital disruptors influence the structure, governance and dynamics of inter-firm collaboration for incumbent firms? (2) In what ways do, for instance, AI technology-enabled disruptions shape the collaboration strategies of incumbent firms facing market survival challenges?
Outcome	Disruptive digital technology as an outcome of collaboration	(1) How do different collaborative structures (e.g., networks, strategic alliances) impact digital technology co-development? (2) How do technology providers, given their superior technological knowledge, influence collaborative outcomes?
Processes	Disruptive digital technology impacting collaboration processes	(1) What are potential barriers and pitfalls of using disruptive technologies as operational toolkits in inter-firm collaboration? (2) How do technical, organizational and regulatory barriers to data sharing impact the adoption of disruptive technologies in firm networks? (3) How can the increased transparency enabled by disruptive technologies lead to unintended negative consequences, such as reduced trust or strategic withholding of information?
Governance	Disruptive technology as a new form of governance	(1) How do disruptive technology-based governance mechanisms compare to or interact with traditional governance in terms of fostering trust and transparency? (2) What are the limitations and potential consequences of relying on disruptive technologies as a primary governance mechanism?
Dynamics, tensions, collaboration strategies	Disruptive technology influencing inter-firm dynamics	(1) How can disruptive technologies create tensions like learning races or resource conflicts in inter-firm collaboration? What are the implications for collaboration dynamics? (2) How can a firm leverage tensions caused by disruptive technologies as a strategic tool to enhance collaborative outcomes? (3) How does a firm's technological knowledge influence its strategic role in a collaboration setting?

eficial to effective inter-firm collaboration, and under which conditions technologies should be deployed complementarily or, conversely, kept separate to avoid complexity, dependency, or coordination problems.

Second, the continuous evolution of digital technologies raises important questions for inter-firm collaboration. Rapid advances in technologies such as generative AI highlight the dynamic nature of digital technologies and challenge the assumption of stable technological environments. While there are already initial studies on how generative AI might substantially influence future innovation processes (Kanbach et al. 2024; Mariani and Dwivedi 2024), the studies in our sample barely touch on generative AI. Future research should therefore explore how this technological dynamism affects collaboration stability, governance arrangements, and partner relationships over time, and how firms might adapt their collaboration strategies in response to the ongoing technological changes. Moreover, scholars should explicitly address whether the generative capabilities of AI might fundamentally alter the role of inter-firm collaboration, giving rise to two contrasting trajectories: Generative AI may either foster broader and more simultaneous collaboration among multiple actors or reduce firms' reliance on inter-firm collaboration altogether, an open question already raised by Bouncken and Vogt (2025).

Third, when disruptive digital technologies constitute the outcome of inter-firm collaboration, important consequences remain underexplored. Future studies should examine how jointly developed digital technologies affect subsequent collaboration trajectories, including whether collaboration is repeated, extended, or terminated. Related questions concern ownership and property rights: To what extent are the initial technological output as well as its ongoing developments and iterative refinements jointly owned, how are intellectual property rights allocated over time, and how do these arrangements shape power dynamics and future collaboration behavior among collaborating firms.

Finally, the themes within our conceptual model strongly suggest that disruptive digital technologies, especially AI, will significantly influence coopetition research, which deals extensively with competitive tensions and paradoxical dynamics (Bouncken and Kraus 2013). Many of the mechanisms highlighted in our review, such as technology-induced power asymmetries, governance shifts, and dynamically evolving collaboration strategies, are particularly salient in coopetitive settings. In line with emerging calls to examine the role of AI and other disruptive digital technologies in coopetition (Bouncken and Vogt 2025; Reischauer and Hoffmann 2023), our framework offers a structured lens to systematically analyze how distinct digital technologies shape coopetitive dynamics across different phases of inter-firm collaboration.

6.1 Limitations

Lastly, we need to acknowledge our study's limitations, primarily stemming from the systematic literature review approach. First, our literature search is based on a single database. Although Web of Science is very comprehensive, and we also conducted backward searches, there is, of course, a possibility that we overlooked relevant literature. Second, based on our filter criteria, we excluded literature, which poses the risk of leaving out other relevant studies. Third, thematic coding was performed manually,

which introduces the risk of subjectivity in our findings. We attempted to mitigate this concern through multiple rounds of coding. Fourth, our review deliberately adopts a broad conceptualization of inter-firm collaboration, as reflected in our research question and keyword search strategy. While we recognize that more specific forms of collaboration, such as open innovation, represent important subfields, we refrained from focusing on these narrower managerial themes in order to maintain an overarching analytical perspective and avoid fragmenting the analysis along highly specialized lines. Finally, our study only included studies published until February 2025. Thus, since interest in our research topic is unlikely to decline in the near future, more literature reviews may be needed to assess studies published after this date.

7 Conclusion

Through a systematic literature review, we developed a conceptual model that illustrates the transformative impact of disruptive digital technologies across the initiation, collaboration, and outcome stage of inter-firm collaboration. Our findings highlight the distinct nature of these technologies, showing that they can act as catalysts for collaboration, transform collaboration processes, dynamics, and governance, and reshape the outcomes of inter-firm collaboration. While disruptive digital technologies can enable collaboration by enhancing efficiency, transparency, and coordination, they also introduce new challenges, including power asymmetries and tensions among collaborating firms. By clarifying the concept of disruptive digital technologies and synthesizing fragmented insights, this study provides a coherent foundation for future research on inter-firm collaboration in digital contexts.

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Data availability The data that support the findings of this study are available from the corresponding author upon request.

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References

Adomako S, Nguyen NP (2024) Digitalization, inter-organizational collaboration, and technology transfer. J Technol Transf 49(4):1176–1202. https://doi.org/10.1007/s10961-023-10031-z

Agrawal R, Yadav VS, Majumdar A, Kumar A, Luthra S, Garza-Reyes JA (2023) Opportunities for disruptive digital technologies to ensure circularity in supply Chain: a critical review of drivers, barriers and challenges. Comput Ind Eng 178:109140. https://doi.org/10.1016/j.cie.2023.109140

Barney J (1991) Firm resources and sustained competitive advantage. J Manag 17(1):99–120. https://doi.org/10.1177/014920639101700108
Basole RC, Park H (2018) Interfirm collaboration and firm value in software ecosystems: evidence from cloud computing. IEEE Trans Eng Manage 66(3):368–380. https://doi.org/10.1109/TEM.2018.2855401
Battleson DA, West BC, Kim J, Ramesh B, Robinson PS (2016) Achieving dynamic capabilities with cloud computing: an empirical investigation. Eur J Inform Syst 25(3):209–230. https://doi.org/10.1057/ejis.2015.12
Benbya H, Davenport TH, Pachidi S (2020) Artificial intelligence in organizations: current state and future opportunities. MIS Q Exec 19(4). https://doi.org/10.2139/ssrn.3741983
Bengtsson M, Kock S, Lundgren-Henriksson E-L, Näsholm MH (2016) Coopetition research in theory and practice: growing new theoretical, empirical, and methodological domains. Ind Mark Manage 57:4–11. https://doi.org/10.1016/j.indmarman.2016.05.002
Bengtsson M, Eriksson J, Wincent J (2010) Coopetition: new ideas for a new paradigm. In: S. Yami, S. Castaldo, G. B. Dagnino, & F. L. Roy (Eds.), Coopetition: Winning Strategies for the 21st Century: 19–39. Sheltenham
Bouncken RB, Barwinski R (2021) Shared digital identity and rich knowledge ties in global 3D printing-A drizzle in the clouds? Glob Strategy J 11(1):81–108. https://doi.org/10.1002/gsj.1370
Bouncken RB, Fredrich V (2016) Learning in coopetition: alliance orientation, network size, and firm types. J Bus Res 69(5):1753–1758. https://doi.org/10.1016/j.jbusres.2015.10.050
Bouncken RB, Fredrich V (2025) Coopetition: a vehicle for business model distinctiveness. Ind Mark Manage 124:113–127. https://doi.org/10.1016/j.indmarman.2024.11.010
Bouncken RB, Kraus S (2013) Innovation in knowledge-intensive industries: the double-edged sword of coopetition. J Bus Res 66(10):2060–2070. https://doi.org/10.1016/j.jbusres.2013.02.032
Bouncken R, Vogt C (2025) Navigating the AI frontier in coopetition: suggestions on conceptual grid, opportunities, and tensions. In: Crick J (ed) De Gruyter Handbook of Coopetition. de Gruyter, Berlin. doi:https://doi.org/10.1515/9783111288987-011.
Bouncken RB, Gast J, Kraus S, Bogers M (2015) Coopetition: a systematic review, synthesis, and future research directions. RMS 9(3):577–601. https://doi.org/10.1007/s11846-015-0168-6
Bouncken RB, Plüschke BD, Pesch R, Kraus S (2016) Entrepreneurial orientation in vertical alliances: joint product innovation and learning from allies. RMS 10(2):381–409. https://doi.org/10.1007/s11846-014-0150-8
Bouncken RB, Fredrich V, Kraus S (2020a) Configurations of firm-level value capture in coopetition. Long Range Plann 53(1):101869. https://doi.org/10.1016/j.lrp.2019.02.002
Bouncken RB, Fredrich V, Kraus S, Ritala P (2020b) Innovation alliances: balancing value creation dynamics, competitive intensity and market overlap. J Bus Res 112:240–247. https://doi.org/10.1016/j.jbusres.2019.10.004
Bouncken RB, Fredrich V (2022) Novel Value Configurations and Business Model Divergence in Dyadic R&D Alliances. In: Academy of Management Proceedings, 2022(1): 16642. https://doi.org/10.5465/AMBPP.2022.16642abstract
Bouncken RB, Ratzmann M (2026) Growing pains: how strategic postures can help and hurt sales growth during periods of severe turbulence. Eur J Inform Syst 1–25. https://doi.org/10.1080/0960085X.2026.2623954
Brandenburger AM, Nalebuff BJ (1996) Co-opetition. Doubleday, New York
van den Broek T, van Veenstra AF (2018) Governance of big data collaborations: how to balance regulatory compliance and disruptive innovation. Technol Forecast Soc Chang 129:330–338. https://doi.org/10.1016/j.techfore.2017.09.040
Chang V, Wills G, Baudier P (2022) Impacts and investigations of disruptive technologies for Industry 4.0. Technol Forecast Soc Chang 174. https://doi.org/10.1016/j.techfore.2021.121232
Cepa K (2021) Understanding interorganizational big data technologies: how technology adoption motivations and technology design shape collaborative dynamics. J Manage Stud 58(7):1761–1799. https://doi.org/10.1111/joms.12740
Cepa K, Schildt H (2022) Data-induced rationality and unitary spaces in interfirm collaboration. Organ Sci. https://doi.org/10.1287/orsc.2021.1566
Choi TM, Kumar S, Yue X, Chan HL (2022) Disruptive technologies and operations management in the industry 4.0 era and beyond. Prod Oper Manage 31(1):9–31. https://doi.org/10.1111/poms.13622
Clauss T, Bouncken RB (2019) Social power as an antecedence of governance in buyer-supplier alliances. Ind Mark Manage 77:75–89. https://doi.org/10.1016/j.indmarman.2018.12.005

Clauss T, Tangpong C, Franco M, Bouncken RB (2026) Enabling joint product innovation in buyer–supplier relationships: roles of buyer directives, relational governance, and joint process innovation. IEEE Trans Eng Manage 73:558–571. https://doi.org/10.1109/TEM.2025.3632967

Colombo MG (2003) Alliance form: a test of the contractual and competence perspectives. Strateg Manag J 24(12):1209–1229. https://doi.org/10.1002/smj.353

Colovic A, Caloffi A, Rossi F, Russo M (2025) Institutionalising the digital transition: the role of digital innovation intermediaries. Res Policy 54(1):105146. https://doi.org/10.1016/j.respol.2024.105146

Cristofaro M, Giardino PL (2025) Surfing the AI waves: the historical evolution of artificial intelligence in management and organizational studies and practices. J Manage History. https://doi.org/10.1108/JMH-01-2025-0002

Czakon W, Srivastava MK, Le Roy F, Gnyawali D (2019) Coopetition strategies: critical issues and research directions. Long Range Plann 101948. https://doi.org/10.1016/j.lrp.2019.101948

Dacin MT, Oliver C, Roy JP (2007) The legitimacy of strategic alliances: an institutional perspective. Strateg Manag J 28(2):169–187. https://doi.org/10.1002/smj.577

Dalenogare, L. S., Le Dain, M.-A., Ayala, N. F., Pezzotta, G., & Frank, A. G. 2023. Building digital servitization ecosystems: An analysis of inter-firm collaboration types and social exchange mechanisms among actors. Technovation, 124: 102756.https://doi.org/10.1016/j.technovation.2023.102756

Das A (2023) Developing dynamic digital capabilities in micro-multinationals through platform ecosystems: assessing the role of trust in algorithmic smart contracts. J Int Entrep 21(2):157–179. https://doi.org/10.1007/s10843-023-00332-7

Das TK, Teng B-S (1996) Risk types and inter-firm alliance structures. J Manage Stud 33:827–843. https://doi.org/10.1111/j.1467-6486.1996.tb00174.x

Das TK, Teng B-S (1998) Between trust and control: developing confidence in partner cooperation in alliances. Acad Manage Rev 23(3):491–512. https://doi.org/10.5465/amr.1998.926623

Das TK, Teng B-S (2000) A resource-based theory of strategic alliances. J Manag 26(1):31–61. https://doi.org/10.1177/014920630002600105

Davenport TH, Ronanki R (2018) Artificial intelligence for the real world. Harvard Business Rev 96(1):108–116

Lee M-J, Roh T (2023) Digitalization capability and sustainable performance in emerging markets: mediating roles of in/out-bound open innovation and coopetition strategy. Management Decision (ahead-of-print10.1108/MD-10-2022-1398

Drasch BJ, Schweizer A, Urbach N (2018) Integrating the 'Troublemakers': a taxonomy for cooperation between banks and fintechs. J Econ Bus 100:26–42. https://doi.org/10.1016/j.jeconbus.2018.04.002

Dubey R, Bryde DJ, Blome C, Dwivedi YK, Childe SJ, Foropon C (2024) Alliances and digital transformation are crucial for benefiting from dynamic supply chain capabilities during times of crisis: a multi-method study. Int J Prod Econ 269:109166. https://doi.org/10.1016/j.ijpe.2024.109166

Dyer JH, Chu W (2003) The role of trustworthiness in reducing transaction costs and improving performance: empirical evidence from the United States, Japan, and Korea. Organ Sci 14(1):57–68. https://doi.org/10.1287/orsc.14.1.57.12806

Dyer JH, Hatch NW (2006) Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships. Strateg Manag J 27(8):701–719. https://doi.org/10.1002/smj.543

Dyer JH, Singh H (1998) The relational view: cooperative strategy and sources of interorganizational competitive advantage. Acad Manage Rev 23(4):660–679. https://doi.org/10.5465/AMR.1998.1255632

Ellingsen O, Aasland KE (2019) Digitalizing the maritime industry: a case study of technology acquisition and enabling advanced manufacturing technology. J Eng Tech Manage 54:12–27. https://doi.org/10.1016/j.jengtecman.2019.06.001

Engwall M, Kaulio M, Karakaya E, Miterev M, Berlin D (2021) Experimental networks for business model innovation: a way for incumbents to navigate sustainability transitions? Technovation 108:102330. https://doi.org/10.1016/j.technovation.2021.102330

Enholm IM, Papagiannidis E, Mikalef P, Krogstie J (2022) Artificial intelligence and business value: a literature review. Inf Syst Front, 24(5): 1709–1734

Fernandez A-S, Le Roy F, Gnyawali DR (2014) Sources and management of tension in co-opetition case evidence from telecommunications satellites manufacturing in Europe. Ind Mark Manage 43(2):222–235. https://doi.org/10.1016/j.indmarman.2013.11.004

Filgueiras F, Raymond A (2023) Designing governance and policy for disruptive digital technologies. Policy Des Pract 6(1):1–13. https://doi.org/10.1080/25741292.2022.2162241

Fountaine T, McCarthy B, Saleh T (2019) Building the AI-powered organization. Harvard Bus Rev 97(4):62–73

Fredrich V, Bouncken RB, Kraus S (2019) The race is on: Configurations of absorptive capacity, interdependence and slack resources for interorganizational learning in coopetition alliances. J Bus Res 101:862–868. https://doi.org/10.1016/j.jbusres.2018.11.038

Fredrich V, Bouncken R, Tiberius V (2022) Dyadic business model convergence or divergence in alliances?–A configurational approach. J Bus Res 153:300–308. https://doi.org/10.1016/j.jbusres.2022.08.046

Friedrich A, Lange A, Elbert R (2022) How additive manufacturing drives business model change: the perspective of logistics service providers. Int J Prod Econ 249:108521. https://doi.org/10.1016/j.ijpe.2022.108521

Gebauer H, Fleisch E, Lamprecht C, Wortmann F (2020) Growth paths for overcoming the digitalization paradox. Bus Horiz 63(3):313–323. https://doi.org/10.1016/j.bushor.2020.01.005

Geurts A, Broekhuizen T, Dolfsma W, Cepa K (2022) Tensions in multilateral coopetition: findings from the disrupted music industry. Ind Mark Manage 105:532–547. https://doi.org/10.1016/j.indmarman.2022.06.020

Gulati R (1998) Alliances and networks. Strateg Manag J 19(4):293–317. https://doi.org/10.1002/(SICI)1097-0266(199804)19:4%3C293::AID-SMJ982%3E3.0.CO;2-M

Hacker J, Miscione G, Felder T, Schwabe G (2023) Commit or not? How blockchain consortia form and develop. Calif Manag Rev 65(3):110–131. https://doi.org/10.1177/00081256231175530

Hagedoorn J, Schakenraad J (1992) Intercompany cooperation and technological developments - leading companies and networks of strategic alliances in information technologies. Res Policy 21(2):163–190. https://doi.org/10.1016/0048-7333(92)90039-7

Hagedoorn J, Schakenraad J (1994) The effects of strategic technology alliances on company performance. Strateg Manag J 15(4):291–309. https://doi.org/10.1002/smj.4250150404

Hamann-Lohmer J, Bendig M, Lasch R (2023) Investigating the impact of digital transformation on relationship and collaboration dynamics in supply chains and manufacturing networks–A multi-case study. Int J Prod Econ 262:108932. https://doi.org/10.1016/j.ijpe.2023.108932

Hanelt A, Bohnsack R, Marz D, Antunes Marante C (2021) A systematic review of the literature on digital transformation: insights and implications for strategy and organizational change. J Manage Stud 58(5):1159–1197. https://doi.org/10.1111/joms.12639

He Q, Meadows M, Angwin D, Gomes E, Child J (2020) Strategic alliance research in the era of digital transformation: perspectives on future research. Br J Manag 31(3):589–617. https://doi.org/10.1111/1467-8551.12406

Holmström J, Kostis A, Galariotis E, Roubaud D, Zopounidis C (2024) Stalled data flows in digital innovation networks: underlying mechanisms and the role of related variety. Ind Mark Manage 121:16–26. https://doi.org/10.1016/j.indmarman.2024.06.007

Huang L, Zhou T (2024) How does blockchain technology enhance firm operation and cooperation? Int Rev Econ Finance 92:34–49. https://doi.org/10.1016/j.iref.2024.01.049

Hughes M, Rigtering JPC, Covin JG, Bouncken RB, Kraus S (2018) Innovative behaviour, trust and perceived workplace performance. Br J Manag 29(4):750–768. https://doi.org/10.1111/1467-8551.12305

Hummel JT, Berends H, Tuertscher P (2025) From boundary objects to boundary infrastructure: a process study of collaboration between big science and big business. J Manage Stud 62(4):1644–1679. https://doi.org/10.1111/joms.13118

Hurmelinna P, Blomqvist K, Puumalainen K, Saarenketo S (2005) Striving towards R&D collaboration performance: the effect of asymmetry, trust and contracting. Creativity Innov Manage 14(4):374–383. https://doi.org/10.1111/j.1467-8691.2005.00357.x

Hwang W-S, Kim H-S (2022) Does the adoption of emerging technologies improve technical efficiency? Evidence from Korean manufacturing SMEs. Small Bus Econ 59(2):627–643. https://doi.org/10.1007/s11187-021-00554-w

Iranmanesh M, Ghobakhloo M, Nilashi M, Tseng M-L, Yadegaridehkordi E, Leung N (2022) Applications of disruptive digital technologies in hotel industry: a systematic review. Int J Hospitality Manage 107:103304. https://doi.org/10.1016/j.ijhm.2022.103304

Jyoti C, Efpraxia Z (2023) Understanding and exploring the value co-creation of cloud computing innovation using resource based value theory: an interpretive case study. J Bus Res 164:113970. https://doi.org/10.1016/j.jbusres.2023.113970

Kamalaldin A, Sjödin D, Hullova D, Parida V (2021) Configuring ecosystem strategies for digitally enabled process innovation: a framework for equipment suppliers in the process industries. Technovation 105:102250. https://doi.org/10.1016/j.technovation.2021.102250

Kanbach DK, Heiduk L, Blueher G, Schreiter M, Lahmann A (2024) The GenAI is out of the bottle: generative artificial intelligence from a business model innovation perspective. RMS 18(4):1189–1220. https://doi.org/10.1007/s11846-023-00696-z

Kaur S, Gupta S, Singh SK, Perano M (2019) Organizational ambidexterity through global strategic partnerships: a cognitive computing perspective. Technol Forecast Soc Chang 145:43–54. https://doi.org/10.1016/j.techfore.2019.04.027

Khanagha S, Ansari S, Paroutis S, Oviedo L (2022) Mutualism and the dynamics of new platform creation: a study of Cisco and fog computing. Strateg Manag J 43(3):476–506. https://doi.org/10.1002/smj.3147

Kraus S, Klimas P, Gast J, Stephan T (2019) Sleeping with competitors: forms, antecedents and outcomes of coopetition of small and medium-sized craft beer breweries. Int J Entrepreneurial Behav Res 25(1):50–66. https://doi.org/10.1108/IJEBR-09-2017-0356

Kraus S, Breier M, Dasí-Rodríguez S (2020) The art of crafting a systematic literature review in entrepreneurship research. Int Entrepreneurship Manage J 16:1023–1042. https://doi.org/10.1007/s11365-020-00635-4

Kraus S, Breier M, Lim WM, Dabić M, Kumar S, Kanbach D, Mukherjee D, Corvello V, Piñeiro-Chousa J, Liguori E (2022a) Literature reviews as independent studies: guidelines for academic practice. RMS 16(8):2577–2595. https://doi.org/10.1007/s11846-022-00588-8

Kraus S, Durst S, Ferreira JJ, Veiga P, Kailer N, Weinmann A (2022b) Digital transformation in business and management research: an overview of the current status quo. Int J Inf Manag 63:102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466

Kraus S, Bouncken RB, Yela Aránega A (2024) The burgeoning role of literature review articles in management research: an introduction and outlook. RMS 18:299–314. https://doi.org/10.1007/s11846-024-00729-1

Larsson B, Rolandsson B, Ilsøe A, Larsen TP, Lehr A, Masso J (2024) Digital disruption diversified—FinTechs and the emergence of a coopetitive market ecosystem. Socio-Economic Rev 22(2):655–675. https://doi.org/10.1093/ser/mwad046

Li N, Boulding W, Staelin R (2010) General alliance experience, uncertainty, and marketing alliance governance mode choice. J Acad Mark Sci 38(2):141–158. https://doi.org/10.1007/s11747-009-0154-0

Liu S, Yang Y, Qu WG, Liu Y (2016) The business value of cloud computing: the partnering agility perspective. Industrial Manage Data Syst 116(6):1160–1177. https://doi.org/10.1108/IMDS-09-2015-0376

Liu H, Amit R, Qiao H, Wang S (2024) Digital platform compatibility strategies in platform co-opetition. J Bus Res 174:114489. https://doi.org/10.1016/j.jbusres.2023.114489

Lorange P, Roos J (1992) Strategic alliances: formation, evolution, and implementation. Basil Blackwell, London

Loukis E, Kyriakou N, Pazalos K, Popa S (2017) Inter-organizational innovation and cloud computing. Electron Commer Res 17(3):379–401. https://doi.org/10.1007/s10660-016-9239-2

Lumineau F, Wang W, Schilke O (2021) Blockchain governance—A new way of organizing collaborations? Organ Sci 32(2):500–521. https://doi.org/10.1287/orsc.2020.1379

Ma S, Kor YY, Seidl D (2020) CEO advice seeking: an integrative framework and future research agenda. J Manag 46(6):771–805. https://doi.org/10.1177/0149206319885430

Ma Q, Chen H, Tian S, Su H, Zhong W, Wang Y (2024) Navigating coopetition: a multiple case study of AI and data-driven strategies in the digital platform economy. Syst Res Behav Sci. https://doi.org/10.1002/sres.3067

Makarius EE, Mukherjee D, Fox JD, Fox AK (2020) Rising with the machines: a sociotechnical framework for bringing artificial intelligence into the organization. J Bus Res 120:262–273. https://doi.org/10.1016/j.jbusres.2020.07.045

Mariani M, Dwivedi YK (2024) Generative artificial intelligence in innovation management: a preview of future research developments. J Bus Res 175:114542. https://doi.org/10.1016/j.jbusres.2024.114542

Matilda Bez S, Chesbrough H (2020) Competitor collaboration before a crisis: what the AI industry can learn. Research-Technology Manage 63(3):42–48. https://doi.org/10.1080/08956308.2020.1733889

Mattos CA, Novais Filho MJ (2024) Mechanisms to develop a business model through the internet of things: a multiple case study in manufacturing companies. Technol Anal Strateg Manag 36(10):2890–2906. https://doi.org/10.1080/09537325.2023.2177826

Meena A, Dhir S, Sushil S (2024) Coopetition, strategy, and business performance in the era of digital transformation using a multi-method approach: some research implications for strategy and operations management. Int J Prod Econ 270:109068. https://doi.org/10.1016/j.ijpe.2023.109068

Melander L, Pazirandeh A (2019) Collaboration beyond the supply network for green innovation: insight from 11 cases. Supply Chain Management: Int J 24(4):509–523. https://doi.org/10.1108/SCM-08-2018-0285

Miehé L, Palmié M, Oghazi P (2023) Connection successfully established: how complementors use connectivity technologies to join existing ecosystems–Four archetype strategies from the mobility sector. Technovation 122:102660. https://doi.org/10.1016/j.technovation.2022.102660

Mirzaei M, Dehe B, Weerasinghe K, Srivastava H (2025) Enhancing supply chain visibility in the fishing industry: the role of emerging technologies and their affordances. Oper Supply Chain Manage 18(2):146160. https://doi.org/10.31387/oscm0610462

Moskowitz H, Drnevich P, Ersoy O, Altinkemer K, Chaturvedi A (2011) Using real-time decision tools to improve distributed decision-making capabilities in high-magnitude crisis situations. Decis Sci 42(2):477–493. https://doi.org/10.1111/j.1540-5915.2011.00319.x

Nicolescu R, Huth M, Radanliev P, De Roure D (2018) Mapping the values of IoT. J Inform Technol 33(4):345–360. https://doi.org/10.1057/s41265-018-0054-1

Niu B, Lai C, Zheng Z, Qi Z, Dai Z (2025) AI quality control in competitive recycling facing material contamination. Int J Prod Econ 282:109541. https://doi.org/10.1016/j.ijpe.2025.109541

Onjewu A-KE, Walton N, Koliousis I (2023) Blockchain agency theory. Technol Forecast Soc Chang 191:122482. https://doi.org/10.1016/j.techfore.2023.122482

Paré G, Trudel M-C, Jaana M, Kitsiou S (2015) Synthesizing information systems knowledge: a typology of literature reviews. Inf Manag 52(2):183–199. https://doi.org/10.1016/j.im.2014.08.008

Parkhe A (1998) Building trust in international alliances. J World Bus 33(4):417–437

Pesch R, Endres H, Bouncken RB (2021) Digital product innovation management: balancing stability and fluidity through formalization. J Prod Innov Manage 38(6):726–744. https://doi.org/10.1111/jpim.12609

Podolny JM, Page KL (1998) Network forms of organization. Ann Rev Sociol 24:57–76. https://doi.org/10.1146/annurev.soc.24.1.57

Powell WW, Koput KW, Smith-Doerr L (1996) Inter-organizational collaboration and the locus of innovation: networks of learning in biotechnology. Adm Sci Q 41(1):116–145. https://doi.org/10.2307/2393988

Randhawa K, Wilden R, Hohberger J (2016) A bibliometric review of open innovation: setting a research agenda. J Prod Innov Manage 33(6):750–772. https://doi.org/10.1111/jpim.12312

Rantala T, Ukko J, Nasiri M, Saunila M (2023) Shifting focus of value creation through industrial digital twins—From internal application to ecosystem-level utilization. Technovation 125:102795. https://doi.org/10.1016/j.technovation.2023.102795

Reischauer G, Engelmann A, Gawer A, Hoffmann WH (2024) The slipstream strategy: how high-status OEMs coopete with platforms to maintain their digital extensions' edge. Res Policy 53(7):105032. https://doi.org/10.1016/j.respol.2024.105032

Reischauer G, Hoffmann WH (2023) Digital coopetition: creating and capturing value with rivals in the age of algorithms, big data, and platforms, Research Handbook on Digital Strategy: 360–375: Edward Elgar Publishing

Rietveld J, Schilling MA (2021) Platform competition: a systematic and interdisciplinary review of the literature. J Manag 47(6):1528–1563. https://doi.org/10.1177/0149206320969791

Rosenfeld SA (1996) Does cooperation enhance competitiveness? Assessing the impacts of inter-firm collaboration. Res Policy 25(2):247–263. https://doi.org/10.1016/0048-7333(95)00835-7

Le Roy F, Bez SM, Gast J (2021) Unpacking the management of Oligo-coopetition strategies in the absence of a moderating third party. Ind Mark Manage 98:125–137. https://doi.org/10.1016/j.indmarman.2021.08.004

Rusko R (2019) Is coopetitive decision-making a black box? Technology and digitisation as decision-makers and drivers of coopetition. Technol Anal Strateg Manag 31(8):888–901. https://doi.org/10.1080/09537325.2019.1573981

Sadic S, de Sousa JP, Crispim JA (2018) A two-phase MILP approach to integrate order, customer and manufacturer characteristics into dynamic manufacturing network formation and operational planning. Expert Syst Appl 96:462–478. https://doi.org/10.1016/j.eswa.2017.10.059

Sauer PC, Seuring S (2023) How to conduct systematic literature reviews in management research: a guide in 6 steps and 14 decisions. RMS 17(5):1899–1933. https://doi.org/10.1007/s11846-023-00668-3

Schöggl JP, Stumpf L, Baumgartner RJ (2024) The role of interorganizational collaboration and digital technologies in the implementation of circular economy practices—Empirical evidence from manufacturing firms. Bus Strategy Environ 33(3):2225–2249. https://doi.org/10.1002/bse.3593

Shamout MD (2023) A configural model of analytics capabilities, ambidexterity, co-opetition, and firm performance in the supply chain context. Bus Strategy Dev 6(2):128–139. https://doi.org/10.1002/bsd2.228

Shang SS, Chiu LS (2023) A RACE pathway for inventing and sustaining mobile payment innovation-A case study of a leading Bank in Taiwan. Asia Pac Manage Rev 28(4):401–409. 1016/j.apmrv.2022.12.007

da Silva A, Cardoso AJM (2024) Co-opetition and the industrial internet of things: a strategic framework for operational efficiency in the portuguese ornamental stone sector. Administrative Sci 14(6):125. https://doi.org/10.3390/admsci14060125

Smania GS, Osiro L, Ayala NF, Coreynen W, Mendes GH (2024) Unraveling paradoxical tensions in digital servitization ecosystems: an analysis of their interrelationships from the technology provider's perspective. Technovation 131:102957. https://doi.org/10.1016/j.technovation.2024.102957

Smith WK, Lewis MW (2011) Toward a theory of paradox: a dynamic equilibrium model of organizing. Acad Manage Rev 36(2):381–403. https://doi.org/10.5465/amr.2009.0223

Snyder H (2019) Literature review as a research methodology: an overview and guidelines. J Bus Res 104:333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Sobrero M, Schrader S (1998) Structuring inter-firm relationships: a meta-analytic approach. Organ Stud 19:585–615. https://doi.org/10.1177/017084069801900403

Subramani M (2004) How do suppliers benefit from information technology use in supply chain relationships? MIS Q 28(1):45–73

Suuronen S, Ukko J, Saunila M, Rantala T, Rantanen H (2024) The implications of multi-sided platforms in managing digital business ecosystems. J Bus Res 175:114544. https://doi.org/10.1016/j.jbusres.2024.114544

Teece DJ, Pisano G, Shuen A (1997) Dynamic capabilities and strategic management. Strateg Manag J 18(7):509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z

Tóth Z, Sklyar A, Kowalkowski C, Sörhammar D, Tronvoll B, Wirths O (2022) Tensions in digital servitization through a paradox lens. Ind Mark Manage 102:438–450. https://doi.org/10.1016/j.indmarman.2022.02.010

Trabucchi D, Falcone C, Gastaldi L, Buganza T, Corso M (2023) Platform enhancers: collaborating in the early stages of transactional platform development. J Eng Tech Manage 70:101779. https://doi.org/10.1016/j.jengtecman.2023.101779

Tranfield D, Denyer D, Smart P (2003) Towards a methodology for developing evidence-informed management knowledge by means of systematic review. Br J Manag 14(3):207–222. https://doi.org/10.1111/1467-8551.00375

Webster J, Watson RT (2002) Analyzing the past to prepare for the future: writing a literature review. MIS Q 26(2):xiii–xxiii

Wei R, Geiger S, Vize R (2019) A platform approach in solution business: how platform openness can be used to control solution networks. Ind Mark Manage 83:251–265. https://doi.org/10.1016/j.indmarman.2019.04.010

Wei R, Geiger S, Vize R (2022) Managing paradoxical tensions in platform-based modular solution networks. Ind Mark Manage 100:96–111. https://doi.org/10.1016/j.indmarman.2021.11.003

West J, Bogers M (2014) Leveraging external sources of innovation: a review of research on open innovation. J Prod Innov Manage 31(4):814–831. https://doi.org/10.1111/jpim.12125

Williamson OE (1996) Transaction cost economics and organization theory. In: Smelser NJ, Swedberg R (eds) The Handbook of Economic Sociology. Princeton University Press, Princeton, N.J.

Wong DTW, Ngai EWT (2022) Supply chain innovation: conceptualization, instrument development, and influence on supply chain performance. J Prod Innov Manage 39(2):132–159. https://doi.org/10.1111/jpim.12612

Woolley JL (2023) Getting along with frenemies: enhancing multi-competitor coopetition governance through artificial intelligence and blockchain. Ind Innovat 30(9):1156–1189. https://doi.org/10.1080/13662716.2023.2168519

Xin X, Miao X, Cui R (2023) Enhancing sustainable development: innovation ecosystem coopetition, environmental resource orchestration, and disruptive green innovation. Bus Strategy Environ 32(4):1388–1402. https://doi.org/10.1002/bse.3194

Xue J, Li G, Ivanov D (2025) Digital transformation in the blockchain era: balancing efficiency and resilience in operations management. Int J Prod Econ 282:109525. https://doi.org/10.1016/j.ijpe.2025.109525

Zhang L, Chen F-W, Xia S-M, Cao D-M, Ye Z, Shen C-R, Maas G, Li Y-M (2021) Value co-creation and appropriation of platform-based alliances in cooperative advertising. Ind Mark Manage 96:213–225. https://doi.org/10.1016/j.indmarman.2021.06.001

Zoppelletto A, Santini E, Rossignoli C, Ricciardi F (2025) Interfirm collaboration enhancing twin transition: evidence from the Italian fashion industry. IEEE Trans Eng Manage. https://doi.org/10.1109/TEM.2025.3528260

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