Building collaboration in FMCG supply chains: a time-based perspective

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Abstract

Purpose – This study aims to examine how supply chain collaboration (SCC) initiatives in logistics develop and are sustained over time. While SCC is widely discussed in the literature, existing research predominantly adopts static perspectives, treating collaboration mechanisms as stable configurations rather than temporally evolving practices. This study addresses this gap by adopting a temporal, process-oriented perspective on SCC development.

Design/methodology/approach – The study adopts a qualitative multiple-case research design, analysing 15 collaboration initiatives across nine companies, comprising major food retailers and multinational producers, operating in the Italian Fast-Moving Consumer Goods sector. Data were collected through semi-structured interviews, pre-interview questionnaires and company documentation and analysed through within-case and cross-case analysis.

Findings – The findings show that collaboration mechanisms do not function uniformly across the lifecycle of an initiative: their role and relevance shift as partnerships mature. The cross-case analysis identifies two additional empirical insights: collaborative function autonomy, the degree of operational independence enjoyed by logistics teams in driving collaboration, and the dual role of time, both as an operational resource and as a relational enabler of trust. Building on these insights, the study proposes a time-based framework mapping how mechanisms are introduced, adapted and sustained across four phases: inception, development, execution and evolution.

Practical implications – The framework provides managers with a phased roadmap for designing and managing collaborative initiatives, supporting more realistic expectations about the pace of collaboration and the investments required at each stage. It also functions as a diagnostic tool, enabling organisations to identify gaps in their collaborative capabilities and plan targeted interventions.

Originality/value – The study's central theoretical contribution is the concept of collaborative timing: the strategic alignment of mechanism introduction with the relational and operational maturity of the partnership. This concept is grounded in two supporting empirical contributions: first, evidence that established SCC mechanisms acquire different roles depending on the phase of an initiative; and second, a time-based framework that distinguishes phase-specific from continuous mechanisms across four phases (inception, development, execution, evolution).

Keywords Supply chain collaboration, Collaboration mechanisms, Time-based framework, Qualitative case study, FMCG supply chain, Logistics

Paper type Research paper

1. Introduction

In today's dynamic and interconnected business environment, a company's competitive advantage is no longer solely determined by internal decisions of individual companies. Instead, it increasingly depends on the ability to collaborate effectively with other members of the supply chain. This shift is driven by several factors: rising complexity and unpredictability, rapid advancements in digitalisation, the proliferation of global communication channels and growing market interconnectivity (Christopher and Holweg, 2017; Golgeci and Kuivalainen, 2019). These pressures are compounded by the increasing frequency of high-impact disruptions, from the COVID-19 pandemic to geopolitical shocks, that have exposed the fragility of globally integrated supply chains and intensified the need for inter-firm coordination and resilience (Moatari-Kazerouni *et al.*, 2025; Marty and Ruel, 2024). At the same time, customers are demanding ever-higher levels of service quality, transparency and customisation, adding further urgency to the challenge of managing complex supply chain relationships effectively (Marty and Ruel, 2024). These converging pressures have made supply chain collaboration (SCC) not merely a strategic option, but an operational necessity for firms seeking to remain competitive (Barratt, 2004; Cao and Zhang, 2011). However,

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despite its recognised importance, firms frequently face difficulties in implementing and sustaining collaborative initiatives. The benefits of SCC in terms of efficiency, responsiveness and performance have been widely documented in the literature (Cao and Zhang, 2011; Simatupang and Sridharan, 2005). At the same time, prior research shows that collaborative initiatives frequently encounter challenges related to coordination, alignment and adaptation as inter-organisational relationships evolve (Fawcett *et al.*, 2015; Golgeci and Kuivalainen, 2019). Understanding of these dynamics, however, remains limited by how SCC has typically been studied. Much of the existing research examines collaboration mechanisms or performance outcomes at a single point in time, treating collaboration as a static configuration rather than an evolving process (Gimenez and Ventura, 2005; Simatupang and Sridharan, 2005; Marty and Ruel, 2024). This static orientation is reflected in existing frameworks, which offer limited guidance on how collaboration mechanisms should be combined, sequenced and adapted as initiatives mature, a gap that has direct practical consequences for managers who must make real-time decisions about how to develop and sustain collaborative relationships. Understanding not only which mechanisms to adopt, but when and how to activate them across the lifecycle of a collaborative initiative, is therefore a pressing theoretical and managerial need.

Accordingly, this study addresses two key research questions (RQs):

RQ1. What are the mechanisms that ensure the effective development of a SCC initiative?

RQ2. How can companies develop a SCC initiative over time?

In this study, mechanisms are defined as the coordinated arrangements, spanning operational practices, technical instruments and relational enablers, through which supply chain partners structure and sustain their collaborative activity (Lambert and Cooper, 2000; Li *et al.*, 2006). This study focuses specifically on collaborative initiatives within the logistics domain, encompassing inventory management, transportation coordination and operational information exchange between supply chain partners. Logistics collaboration is particularly relevant for SCC because it is where plans are executed, where coordination failures become immediately visible and where the relational dynamics between partners are tested on a daily basis. The Fast-Moving Consumer Goods (FMCG) sector provides a particularly informative empirical context for this investigation. FMCG supply chains are characterised by high product volumes, thin margins, tight delivery windows, pronounced demand volatility and frequent promotional events that create recurring coordination challenges between producers and retailers. These features make FMCG logistics inherently demanding in terms of inter-firm coordination and especially sensitive to the timing and sequencing of collaborative arrangements. Within this setting, logistics carries additional weight: it is the function where the cost and service implications of coordination decisions materialise most directly, shaping outcomes such as on-shelf availability, delivery performance and operating costs. The gains from effective collaboration, and the consequences of its failure, are therefore more evident in logistics than in most other supply chain functions. This makes FMCG an especially relevant context for studying how logistics collaborative initiatives develop, which is the focus of this study. Empirically, the study draws on a qualitative multiple-case analysis of 15 collaboration initiatives involving nine FMCG firms in Italy, conducted in partnership with GS1 Italy through its ECR community (Efficient Consumer Response). The nine companies participating in this study, comprising both major food retailers and multinational producers operating in the Italian market, represent a range of collaboration initiatives, from inventory management and Vendor Managed Inventory (VMI) schemes to consolidated delivery programmes and electronic data interchange (EDI) implementation. The 15 collaborative initiatives analysed include both successful cases and cases that failed or were discontinued, providing analytical leverage on the conditions that differentiate effective from ineffective collaboration.

A recurrent observation across the SCC literature is that collaboration tends to be studied as a state, a condition that firms either achieve or fail to achieve, rather than as a process that unfolds over time. Several recent reviews have noted this limitation explicitly: Marty and Ruel (2024), in a comprehensive review of SCC research spanning several decades, identify the lack of dynamic and longitudinal perspectives as one of the field's most significant gaps. Simatupang and Sridharan (2005) and Gimenez and Ventura (2005), whose work remains foundational in the field, examine mechanisms as stable collaborative elements rather than as temporally sequenced interventions. More recent studies continue this pattern: Katsaliaki *et al.* (2024), in a review of supply chain coopetition mechanisms, identify which mechanisms matter without investigating when they should be deployed. This static orientation is not merely a theoretical limitation; it has practical consequences, because it offers managers little guidance on how to sequence and adapt collaboration as relationships evolve.

To address this limitation, the present study adopts a temporal, process-oriented perspective on SCC, investigating how collaboration initiatives in logistics develop over time and how different mechanisms support distinct phases of their evolution. The study makes three contributions, organised around a central theoretical claim. Its primary contribution is the concept of collaborative timing: the strategic alignment of mechanism introduction with the relational and operational maturity of the partnership, a construct that extends process-oriented perspectives on SCC. Collaborative timing is not simply a restatement of sequencing or of stage-dependent implementation: it locates the explanatory weight in the fit between a mechanism and the developmental state of the partnership at the moment of its introduction, and therefore accounts for variation between initiatives that follow the same sequence, and for mechanisms that are present throughout an initiative but whose effect changes as conditions change. This concept is grounded in two supporting empirical contributions. Firstly, the study provides empirically grounded evidence on how a broad set of SCC mechanisms function differently depending on the phase of a collaborative initiative. Secondly, it proposes a time-based framework that maps the sequencing

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and phasing of these mechanisms across four phases of collaboration: inception, development, execution and evolution.

The remainder of this paper is organised as follows. Section 2 presents the theoretical background on SCC mechanisms. Section 3 describes the research methodology. Section 4 reports the findings from the within-case and cross-case analyses. Section 5 presents the time-based framework. Section 6 discusses the findings in relation to the literature and develops the theoretical contributions. Section 7 concludes the paper with implications for practice and directions for future research.

2. Theoretical background

The study of SCC has positioned collaboration as a core component of SCM, structured around key dimensions that shape collaborative initiatives. According to Lambert and Cooper (2000) three essential dimensions define collaboration in SCM. The first dimension is the field of collaboration, which refers to the specific business processes where collaboration takes place. These may include demand management, procurement, production planning, logistics and customer service. Collaboration in these areas supports integration between supply chain partners and contributes to improvements in efficiency and responsiveness. For example, collaborative demand forecasting or co-managed inventory can reduce uncertainty and improve service levels (Simatupang and Sridharan, 2002). The second dimension concerns the partners involved and the nature of their interactions. Collaboration can occur vertically, involving firms at different stages of the supply chain (e.g. suppliers and retailers) (Guo *et al.*, 2023), or horizontally, involving firms at the same level, including competitors (Guo *et al.*, 2022). The type of relationship influences the objectives, governance and complexity of the collaboration. Vertical collaboration often focuses on streamline processes and reduces redundancy, while horizontal collaboration may aim at resource sharing or joint innovation (Barratt, 2004). Previous research also suggests that the involvement of multiple supply chain members across vertical and horizontal relationships can foster supply chain innovation and support long-term improvements (Solaimani and van der Veen, 2021). The third dimension, which is the focus of this study, relates to how collaboration happens, that is the mechanisms that enable and sustain collaborative initiatives. While the literature has proposed a wide range of mechanisms, a common challenge is the lack of a unified classification, which makes it difficult for firms to identify, prioritise and implement them effectively (Simatupang and Sridharan, 2005).

Several mechanisms have been widely discussed in the literature (Katsaliaki *et al.*, 2024; Marty and Ruel, 2024). Strategic and joint planning mechanisms are frequently highlighted as important for coordinating activities and aligning objectives across partners (Liu *et al.*, 2024). Performance measurement systems and shared metrics are commonly discussed as tools to monitor collaboration outcomes and support continuous alignment (Cao and Zhang, 2011). For example Factory Gate Pricing, which centralises control over inbound logistics at the factory gate, illustrates how joint planning, information sharing and synchronised decision-making can be combined to improve service levels and logistics efficiency (Mandal *et al.*, 2016).

Technology also plays a key enabling role. The adoption of standardised IT systems, EDI and Internet of Things solutions facilitates real-time data exchange, improves interoperability and enhances the traceability of goods (Hrouga, 2024; Richey *et al.*, 2012). Shared digital platforms can enhance visibility and coordination, supporting more responsive logistics operations (Gunasekaran and Ngai, 2004; Lin *et al.*, 2021).

In addition to these operational mechanisms, the literature highlights the importance of behavioural and relational enablers. Elements such as trust, shared vision and joint knowledge creation are frequently cited as critical for long-term collaboration. For example, De Angelis *et al.* (2018) and Fischer and Pascucci (2017) emphasise that a shared vision and effective communication among business partners are essential for integrating diverse expertise and ensuring long-term collaboration. Similarly, affective trust, based on mutual respect and perceived integrity, has been shown to enhance information sharing and reduce opportunistic behaviour (Salam, 2017). Finally, relationship-specific investments, such as dedicated personnel, co-developed systems or customised infrastructure, are recognised as signals of long-term commitment and trust. These investments, while risky due to their limited reusability, strengthen interdependence and reduce the likelihood of opportunistic behaviour (Daugherty *et al.*, 2006; Malviya *et al.*, 2024). To illustrate the integration of these mechanisms, prior studies often refer to well-known collaborative models, such as the Dell supply chain. This example shows how decision synchronisation, information sharing, incentive alignment and process integration can collectively support responsive and efficient supply chain operations (Simatupang and Sridharan, 2008). Such cases highlight how different categories of mechanisms can coexist within a collaborative arrangement. In logistics settings, these relational mechanisms also extend to third parties: logistics service providers can act as trust builders within producer–retailer triads, fostering mutual trust and communication and thereby enabling collaboration beyond the dyad (Prataviera *et al.*, 2023).

Given the diversity of mechanisms discussed in the literature, Lambert and Cooper (2000) propose a classification system based on nine categories, grouped into two macro-areas:

1 physical and technical components;
2 managerial and behavioural components.

The physical and technical components, such as shared IT systems and logistical tools, are linked to mechanisms that lead to tangible, measurable improvements in operational processes. These mechanisms are often easier to implement and allow for direct control and monitoring, like information-sharing platforms and standardised coordination procedures (Zhao *et al.*, 2023). Managerial and behavioural components, such as leadership, trust-building and culture alignment, are more intangible and harder to measure. However, these mechanisms are crucial for fostering the organisational environment needed for long-term, sustainable collaboration.

Tables 1 and 2 adopt this classification to synthesise collaboration mechanisms identified in prior studies, organising them into the two macro-categories and illustrating each mechanism with key references. Taken together, the

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Table 1 Physical and technical mechanisms enabling SCC

Category	Mechanism	Description	Main references
Planning and control methods **The extent of joint planning between supply chain partners significantly impacts the overall success of the supply chain. Although different components may take precedence at various stages of the supply chain lifecycle, planning remains a critical, ongoing activity that transcends all phases. Control, on the other hand, is operationalised through performance metrics, which are crucial for measuring the success of the supply chain (D. M. Lambert and Cooper, 2000)**	Joint planning	The synchronisation of planning activities between supply chain partners to optimise operations and foster stronger relationships	Nguyen and Mai (2022); Susanty *et al.* (2020)
	Joint decision-making	A collaborative approach where partners use shared information to solve problems and set strategic objectives, improving overall performance	Nurhayati *et al.* (2023); Al-Doori (2019)
	Joint performance management	The use of performance metrics and KPIs (key performance indicator) to measure collaboration effectiveness and support continuous improvement	Demiray *et al.* (2017); Papakiriakopoulos and Pramatari (2010)
	Joint problem-solving	A structured approach to resolving operational and strategic issues through regular meetings and cooperative initiatives	Pradabwong *et al.* (2015); de Paula *et al.* (2020)
	Goal congruence	Aligning supply chain objectives to ensure effective coordination and resource allocation, fostering resilience and mutual benefit	Boubker *et al.* (2023)
	SMART goals	Establishing performance targets (goals) that are specific, measurable, achievable, relevant and time-bound to maintain focus and track collaborative progress	Demiray *et al.* (2017)
Workflow/activity structure **It refers to how tasks and activities are organised and executed across the supply chain. This structure not only shapes the internal operations but also reflects the degree of process coordination with supply chain partners. As noted by (D. M. Lambert and Cooper, 2000), the level of integration within a supply chain is a key indicator of organisational structure, with higher integration often correlating with more efficient, collaborative activities**	Flow synchronisation	Ensuring seamless coordination of supply chain processes using ICTs like EDI and web-based platforms to enhance real-time responsiveness	Mandal *et al.* (2016); Soosay *et al.* (2008)
	Process integration	The alignment of workflows and operational activities across firms to reduce costs, increase trust and promote long-term partnerships	Ocicka *et al.* (2022); Cao and Zhang (2011); Gimenez and Ventura (2005)
	Standardisation of collaborative procedures	Establishing common rules and processes to ensure consistency, reduce inefficiencies and prevent conflicts between supply chain partners	Hernández *et al.* (2008)
Organisational structure **When a firm include external stakeholders, such as in-plant supplier personnel, the supply chain becomes more integrated. This cross-boundary integration is a key feature of effective supply chain collaboration, enabling seamless communication and coordination between partners (D. M. Lambert and Cooper, 2000)**	Cross-organisational teams	Groups composed of members from different companies working together to drive improvement initiatives and optimise decision-making	Kotzab and Teller (2003); Long (2017)
	Cross-functional teams	Internal teams combining expertise from various departments to enhance internal collaboration and operational stability	Malagón-Suárez and Orjuela-Castro (2023); Pujawan *et al.* (2014)
	Co-location of personnel	The physical presence of supplier or partner personnel within another firm to enhance coordination and streamline communication	Jin and Edmunds (2015)
	Contractual agreements on roles and conditions	Defining formal roles and responsibilities to support collaboration through transparent and structured agreements, including smart contracts	Boddy *et al.* (2000)
Communication and information flow **The type of information exchanged among supply**	Information sharing	Exchanging relevant, timely and accurate data to improve coordination, reduce uncertainty and enhance decision-making	Olorunniwo and Li (2010); Ali *et al.* (2022); Prasanna and Haavisto (2018)

(*continued*)

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Table 1

Category	Mechanism	Description	Main references
chain members and the frequency of updates significantly impact supply chain efficiency, making this often the first component to be integrated across different parts of the supply chain (D. M. Lambert and Cooper, 2000)	Standardisation of information technology	Implementing shared technologies, such as EDI, to ensure compatibility and smooth an effective data flow between partners	Hrouga (2024); Richey *et al.* (2012)
	Shared technology and business platform	Using web-based and cloud platforms to facilitate collaboration, improve real-time visibility and enhance supply chain resilience	Smith *et al.* (2007); Gunasekaran and Ngai (2004); Lin *et al.* (2021)
	Database	Centralising data storage to enable seamless exchange of standardised information across partners	Adams *et al.* (2014)
	Data mining techniques	Leveraging machine learning and analytics to optimise supply chain processes, improve forecasting and enhance overall efficiency	Ali *et al.* (2022); Gunasekaran and Ngai (2004)
Product flow **The product flow facility structure refers to the network for sourcing, manufacturing and distribution across the supply chain. Since inventory is a necessary component, some supply chain members may end up holding a disproportionate amount of it**	Asset and resource sharing	The collaborative use of warehouses, transportation and logistics infrastructure to maximise efficiency and reduce redundant investments	Ramanathan and Gunasekaran (2014); Montoya-Torres *et al.* (2016)

Source(s): Authors' own work

literature provides an overview of collaboration mechanisms and their potential role in supporting SCC. However, these mechanisms are predominantly discussed as discrete or relatively stable elements, offering more limited insight into how they are combined, adapted and reconfigured as collaborative initiatives evolve over time. This static orientation has been explicitly noted in recent reviews of the field (Marty and Ruel, 2024; Katsaliaki *et al.*, 2024), and represents the central theoretical gap that this study addresses. Marty and Ruel (2024), in a systematic bibliometric and content analysis of SCC research spanning several decades, identify the absence of dynamic and longitudinal perspectives as one of the most persistent gaps in the literature, noting that the majority of empirical studies capture collaboration at a single point in time and treat mechanisms as stable attributes rather than evolving practices. Grimm *et al.* (2024), in a methodological contribution, argue more broadly that traditional SCM research reflects only a limited understanding of process, overlooking how dynamically interrelated processes shape supply chain trajectories over time, an observation that applies with particular force to the SCC literature. Similarly, Katsaliaki *et al.* (2024), in their systematic review of supply chain coopetition mechanisms, identify which mechanisms support collaborative outcomes without addressing when or in what sequence they should be deployed. Earlier contributions, including Simatupang and Sridharan (2005) and Gimenez and Ventura (2005), examine mechanisms as stable elements of a collaborative configuration, a framing that much subsequent research has inherited. As a result, the cumulative body of SCC literature offers limited guidance on one of the most pressing practical challenges facing logistics managers: how to sequence and adapt collaboration mechanisms as inter-organisational relationships develop over time. This gap matters theoretically and managerially. Theoretically, a static perspective cannot explain why the same mechanism, such as risk and revenue sharing, joint planning or shared technology platforms, may succeed in one collaborative initiative and fail in another, even when implemented in comparable organisational contexts. The explanation may lie not in the mechanism itself but in when it is introduced relative to the relational and operational maturity of the partnership. There exists a small but important stream of SCM research that has begun to address this challenge. Fawcett *et al.* (2008) proposed a three-stage implementation model for SCC, arguing that collaboration unfolds through discernible stages, from awareness and exploration to expansion and commitment and that different barriers and enablers are operative at each stage. Fawcett *et al.* (2012) extended this perspective by conceptualising SCC as a dynamic capability, characterising it as an evolving and context-sensitive process rather than a static configuration. In a similar vein, Huang *et al.* (2020) advanced a contingent and dynamic view of collaboration, arguing that collaborative activities should be aligned with the type of business relationship and reconfigured as the collaboration develops over time. Within logistics specifically, Pomponi *et al.* (2015) proposed an evolutionary framework in which collaboration advances incrementally along two dimensions, the mutual trust between partners and the extent of their cooperation. These contributions established

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Table 2 Managerial and behavioural mechanisms enabling SCC

Category	Mechanism	Description	Main references
Management methods **It can be particularly challenging to integrate different organisational structures, such as top-down and bottom-up approaches, due to variations in the level of management involvement across supply chain members (D. M. Lambert and Cooper, 2000). For this reason, management methods play a crucial role in the optimisation of the interactions between supply chain partners**	Agile management	Focuses on flexibility and adaptability to handle unexpected changes in supply chains, enhancing responsiveness to customer demand	Ali *et al.* (2022)
	Continuous improvement	Emphasises ongoing enhancement of processes using tools like Six Sigma and FMEA to identify inefficiencies and improve quality, encouraging employee engagement	Mayer *et al.* (2016)
	PDCA cycle implementation	An iterative framework (Plan-Do-Check-Act) for continuous improvement, ensuring regular reviews and adjustments for long-term relevance and effectiveness	Demiray *et al.* (2017)
Power and leadership structure **In many of the supply chains studied, One or Two firms tend to hold leadership roles. The use – or absence – of power can strongly impact the level of commitment from other members in the chain. Forced participation often results in members leaving the collaboration as soon as the opportunity arises (D. M. Lambert and Cooper, 2000)**	Top management support	Crucial for navigating risks and building relationships, ensuring motivation and resource mobilisation throughout the organisation	Malviya *et al.* (2024)
	Leading by example	One partner demonstrates successful practices to guide others, fostering trust and providing a framework for collaborative efforts	Mason *et al.* (2007)
	Transactional leadership	Focuses on rewards and incentives to manage performance, promoting accountability and alignment with collective goals	Kim and Lee (2024)
Risk and reward structure **This category emphasises the importance of jointly managing the risks and rewards associated with shared operations and outcomes. The anticipation of sharing risks and rewards across the chain impacts the long-term commitment of channel members (D. M. Lambert and Cooper, 2000)**	Incentive alignment	Designs incentives to align decision-making with overall supply chain goals, ensuring collaboration and avoiding opportunistic behaviour	Nguyen and Mai (2022)
	Risk and revenue sharing	Promotes mutual trust by distributing risks and rewards, fostering innovation and fair financial gains among partners	Prasanna and Haavisto (2018); Xue (2022)
	Relationship-specific investments	Allocates dedicated resources for collaboration, enhancing trust and interdependence, while acknowledging the risks of limited asset reuse	Luo *et al.* (2015); Malviya *et al.* (2024)
	Performance improvement awards	Recognises and rewards performance milestones, motivating participants and ensuring long-term success	Daugherty *et al.* (2006)
Culture and attitude **Compatibility of corporate culture across channel members cannot be underestimated. Meshing cultures and individuals' attitudes is time consuming, but it is necessary at some level in order for the channel to perform as a chain. (D. M. Lambert and Cooper, 2000)**	Vision sharing	Aligns corporate cultures and strategic goals across partners, ensuring cohesive operation and fostering commitment to shared processes	D. M. Lambert and Cooper (2000); Sadha *et al.* (2024)
	Trust	Builds a foundation for collaboration by ensuring competence and integrity between partners, crucial for joint decision-making and transparency	Nurhayati *et al.* (2023); Salam (2017)
	Inter-organisational team-building activities	Encourages relationship-building through activities like workshops, experience-sharing and training to foster trust and effective communication	Nguyen and Mai (2022); Carvalho *et al.* (2021)
	Collaborative communication	Involves open, frequent and balanced communication through various channels, ensuring alignment on goals and responsibilities	Mayer *et al.* (2016); Boubker *et al.* (2023)

Source(s): Authors' own work

important reference points, but they did not systematically examine which specific mechanisms are associated with each stage, nor did they address the role of elapsed time as a relational enabler. As a result, they do not explain why the same mechanism may succeed in one collaborative initiative and fail in another despite apparently similar contextual conditions. The present study addresses this gap by shifting the analytical focus from collaboration stages themselves to the temporal deployment of collaboration mechanisms. Building on this stream of research, this study proposes a time-based framework that maps how mechanisms are introduced, sustained and adapted across the phases of collaborative initiative development. Central to this framework is the notion of collaborative timing, i.e. the alignment of mechanism introduction with the relational and operational maturity of the partnership, which this

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study develops to explain why the same mechanism may produce different outcomes at different stages.

3. Methodology

3.1 Research design

This study uses a qualitative multiple-case study approach to explore how SCC mechanisms develop and evolve over time within the Italian FMCG sector. A case study design is particularly appropriate for investigating complex, context-dependent phenomena in which the boundaries between the phenomenon and its real-world setting are not clearly defined (Yin, 2014). This is especially pertinent here, given that the temporal unfolding of collaboration initiatives is inherently embedded in the specific relational and operational contexts in which they occur. The qualitative research provides rich, real-world insights, particularly for complex operational systems with interdependencies, which quantitative methods such as surveys may not fully capture (Baxter and Jack, 2010; Eisenhardt, 1989). The multiple-case design enables comparative analysis across diverse contexts, enhancing the robustness and external validity of the findings (Eisenhardt, 1989). It also allows for the identification of recurring patterns and the emergence of novel insights, particularly regarding how collaboration mechanisms are implemented and evolve over time. Rather than aiming for statistical generalisation, the study pursues analytical generalisation (Yin, 2014): by identifying recurring patterns across cases, it builds theoretical insights about the phased evolution of SCC initiatives that may extend beyond the specific empirical context studied. The research followed a structured process consisting of three main phases: case selection, data collection and data analysis (Corbin and Strauss, 2008).

3.2 Case selection

Case selection was guided by a replication logic to identify cases that could provide relevant insights into the phenomena of SCC (Dubois and Araujo, 2007; Yin, 2014). Specifically, cases were selected to either predict similar results (literal replication) or produce contrasting results for predictable reasons (theoretical replication) (Yin, 2014). The cases were chosen to represent a diverse sample within the FMCG sector, encompassing both successful and failed collaboration initiatives. The selection criterion was that the initiative had been active at some point within the five years preceding data collection, so that respondents could speak from direct and recent experience; it was not required that the initiative had also begun within that window. Most of the initiatives in the sample were both launched and concluded during this period. C11 is the exception: the collaborative arrangement described there has developed since 2011, and it was deliberately retained because its extended horizon allows observation of the later stages of collaborative development. Cases were identified through the research partnership with GS1-ECR Italy, a neutral industry body that facilitates collaboration between producers and retailers in the Italian FMCG sector. Access to participating companies was negotiated through this institutional channel, which also provided legitimacy and facilitated the disclosure of sensitive information about failed initiatives. The classification of initiatives as successful or failed was based on two converging criteria: first, whether the initiative had achieved its stated objectives as reported by the respondents at the time of the interview; and second, whether the initiative was still active or had been discontinued. The two criteria were applied hierarchically rather than additively. Achievement of the stated objectives was treated as the primary criterion, while the status of the initiative at the time of the interview served as a corroborating indicator. In applying the second criterion we distinguished between planned closure and premature discontinuation. An initiative concluded by joint agreement once its stated objective had been met was classified as successful, whereas one abandoned before its objectives were achieved, or that faded without any formal decision, was classified as failed. C7 falls under the first rule: the pre-buffer stock scheme was a bounded response to the shortages of summer 2022, it reduced late deliveries during the 2023 peak and the partners jointly decided at the end of 2023 not to extend it, so its closure reflects the completion of a defined objective rather than a breakdown of the collaboration. In ambiguous cases, the classification was discussed and agreed upon between the researchers following the interview, drawing on the full set of evidence collected, including interview narratives, questionnaire responses and available documentation. A total of 15 cases of collaboration initiatives were selected as the unit of analysis from 9 FMCG companies in Italy, comprising both producers and retailers. This sample size was deemed appropriate for an exploratory case study, providing sufficient depth of observation and a broad enough sample to uncover patterns (Eisenhardt, 1989). The selected companies were actively engaged in logistics and supply chain processes and expressed willingness to participate in the study, including willingness to discuss initiatives that had not achieved their intended outcomes. Each participating company designated one or more key informants for the study: in all cases, respondents held senior operational roles (logistics managers, supply chain directors or equivalent), ensuring that informants had direct experience with the collaborative initiatives under investigation and were in a position to speak authoritatively about both the mechanisms adopted and the outcomes achieved. Detailed information about each company is summarised in Table 3.

3.3 Data collection

Data were collected through three complementary sources: a pre-interview questionnaire, semi-structured interviews and company documentation. The combination of these sources enabled triangulation, which strengthens the credibility and validity of qualitative findings by allowing insights from one source to be corroborated, qualified or extended by those from another (Bans-Akutey and Tiimub, 2021). The questionnaire (Appendix) was designed as a structured instrument, sent to respondents in advance of the interview. It served two purposes: first, to ensure that all respondents considered the full range of collaboration mechanisms identified in the literature, providing a common reference framework; and second, to generate a structured record of mechanism adoption that could serve as an anchor for the subsequent interview. Respondents were provided with the definitions of each mechanism (as listed in Tables 1 and 2) alongside the mechanism labels, to ensure a shared understanding of the

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Table 3 Profile of participating companies and case distribution

Company	Retailer/Producer	Employees	Type of product	# of cases	Additional notes
A	Retailer	10,000+	Food	1	Major operator in food retail, primarily established in northeastern regions, recognised for a broad assortment of grocery products
B	Retailer	38,000+	Food	3	Leading cooperative group in national grocery retail, distinguished by its extensive network and widespread franchising model
C	Retailer	25,000+	Food	1	Prominent supermarket chain focused on premium positioning, managing most stores directly with strong market presence
D	Retailer	15,000+	Food & non-Food	3	Large cooperative formed by merging regional entities, with a notable emphasis on sustainability and member services
E	Retailer	7,500+	Food & non-Food	1	Historic retail cooperative with a wide membership base and a store network mainly across Central and Northern areas
F	Retailer	12,000+	Food & non-Food	1	International food retail multinational, operating both directly managed and franchised outlets with a wide international assortment
G	Producer	3,000+	Beverages	2	Global leader in non-alcoholic beverage production and distribution, with One of the most recognised product portfolios worldwide
H	Producer	8,000+	Food & beverages	2	Multinational food industry group, active in several market segments and known for widely consumed brands
I	Producer	2,000+	Food & beverages	1	International company specialising in food and beverages, with particular focus on dairy products and infant nutrition

Source(s): Authors' own work

constructs under consideration. The questionnaire was distributed prior to the interviews and included both open and closed-ended questions, where respondents selected mechanisms from a predefined list. The questionnaire aimed to identify the mechanisms that participants found most useful for collaboration and those they actively sought to implement. It is important to note that the questionnaire was not used as a standalone analytical instrument: its role was preparatory, and the binary responses it generated were treated as a starting point for, not a substitute for, the qualitative interview data. Interviews were conducted from May to October 2024. Two researchers conducted the interviews together to maintain consistency and ensure thorough data collection. Each interview lasted between 60 and 90 min. The interviews were guided by an open-ended protocol structured around the following key themes:

- the context and objectives of the collaborative initiative;
- the mechanisms adopted or considered, with explicit reference to the pre-sent questionnaire;
- the evolution of the initiative over time, including how mechanisms were introduced, adapted or discontinued at different stages;
- the role of time and the relational dynamics between partners; and
- the factors that contributed to the success or failure of the initiative.

Respondents were actively encouraged to narrate the chronological development of their initiatives and to describe turning points, moments of adaptation and shifts in the collaborative relationship. This narrative orientation was central to capturing the temporal dimension that is the focus of this study. Interviews were conducted on the companies' premises, and confidentiality and anonymity of the participants were guaranteed.

To further enhance the credibility and validity of the study, a triangulation approach was adopted. This allowed us to systematically integrate insights from the questionnaires, semi-structured interviews and, where available, company documentation. Triangulation not only facilitated the corroboration of findings and strengthened the robustness of the results but also mitigated the inherent limitations of relying on a single data collection method, enabling a more nuanced and comprehensive understanding of the collaboration mechanisms under investigation (Bans-Akutey and Tiimub, 2021). Company documentation, including internal reports, performance summaries and correspondence shared voluntarily by respondents, was used to triangulate and corroborate the interview narratives.

3.4 Data analysis

The analysis of the data was performed in two stages: within-case analysis and cross-case analysis (Miles and Huberman, 1994; Yin, 2014). Within-case analysis: for each of the 15 initiatives, the researchers independently reviewed the full set of data, i.e. questionnaire responses, interview notes and recordings and available documentation, and produced a structured case narrative. Each narrative was anchored by the object and objectives of the initiative, i.e. its scope and intended outcomes, and then organised around three analytical dimensions:

1. the mechanisms adopted at each identifiable stage of the initiative;
2. the temporal sequence in which mechanisms were introduced, adapted or discontinued; and
3. the contextual factors that shaped collaborative dynamics, including relational conditions, organisational constraints and critical events.

After independent review, the researchers compared their interpretations, discussed discrepancies and reached consensus through discussion. This process of researcher triangulation strengthened the reliability of the within-case interpretations (Miles and Huberman, 1994). The resulting case narratives form the basis of the descriptions presented in Section 4.1.

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Cross-case analysis: following the completion of the within-case narratives, a pattern-matching technique (Yin, 2014) was applied to identify patterns and themes across the 15 initiatives. This analysis proceeded in three steps. First, mechanisms were compared across initiatives to identify which were consistently present in successful cases and absent or cited as missing in failed ones (Table 5). Second, the temporal positioning of mechanisms across cases was examined: respondents' narratives, which explicitly invited chronological accounts of initiative development, were analysed to identify at which stage of the initiative each mechanism was first introduced or gained operational relevance. Third, mechanisms that could not be mapped to existing theoretical categories, and novel concepts recurring across cases, were examined for their theoretical implications and incorporated into the emerging framework.

The time-based framework presented in Section 5 was developed through a process in which theoretical concepts and empirical observations were confronted iteratively. The initial temporal structure was theoretically informed: it adapted the process groups of project management practice, namely initiating, planning, implementing, controlling and closing (Tonnquist, 2018), read alongside lifecycle accounts of inter-organisational relationships (Lambert *et al.*, 1996; Spekman *et al.*, 1998), and the interview protocol, which invited respondents to narrate their initiatives chronologically, was designed against it. The analysis of the case narratives then led us to compress this structure into the four phases retained here. Inception and development were corroborated by the temporal clusters, whereas stages that respondents did not experience as distinct were merged: the implementing and problem-management stages into execution, since problem-solving was described as part of running an initiative rather than as a stage of its own, and the later stages of maturity and closure into evolution, since the initiatives, with one exception, were continued, expanded or abandoned rather than formally concluded. The placement of individual mechanisms, initially drawn from the literature, was likewise revised against the case evidence. Table 6 reports the resulting placement and, for each mechanism, the evidence from the case narratives on which it rests.

The framework was then refined through two rounds of practitioner engagement. A preliminary version, based on the cases available at that point, was discussed in a first workshop held in July 2024. The interviews conducted between August and October 2024 were subsequently used to examine whether the emerging structure held for cases not represented in that preliminary version; these later cases prompted refinements to the placement of individual mechanisms but did not require a revision of the phase structure. The consolidated framework was presented in a second workshop in December 2024. In both sessions, participants reviewed the four phases and the placement of mechanisms within them, and reported that the proposed sequence resonated with the developmental logic they recognised in their own initiatives. Member checking of this kind strengthens the credibility of an interpretation and demonstrates that it is meaningful to those whose experience it describes (Lincoln and Guba, 1985).

It is acknowledged that the structured nature of the pre-interview questionnaire, which invited respondents to select mechanisms from a list drawn from the literature, may have constrained the emergence of entirely novel categories. However, the open-ended interview protocol provided substantial scope for respondents to raise concerns, describe mechanisms not on the list and articulate the relational and temporal dynamics that shape collaboration. The two novel concepts identified, collaborative function autonomy and the dual role of time, were drawn from the interview narratives rather than from the questionnaire, and were not present in the list of mechanisms drawn from the literature.

4. Findings

4.1 Within case analysis

The within-case analysis was conducted through the structured narrative approach described in Section 3.4. The case descriptions below present the synthesised narrative for each initiative, drawing on interview excerpts and questionnaire data. Table 4 provides, for each case, the list of collaboration mechanisms. The notation used in Table 4 distinguishes between three states: mechanisms that were actively implemented (x); mechanisms that respondents identified as absent but which they regarded as a missing condition for the initiative's success (–); and mechanisms that were neither adopted nor mentioned by respondents (blank cell). Cases in bold refer to successful initiatives (S) and cases in italics to failed ones (F). The case identifiers (C1-C15) reflect the sequence of data collection; the letter in parentheses indicates the company from which the initiative originates (A through I, as described in Table 3).

4.1.1 C1 (A) – collaboration planning

A collaboration was established between a retailer and its suppliers to improve operational efficiency, particularly in terms of on time delivery. Clear service level indicators were defined, and monthly meetings were held to ensure continuous alignment with expectations. As noted by the retailer, "*When the goal is service or punctuality, not talking about logistics cost is a relationship enabler*", underscoring the importance of prioritising service over cost in fostering collaboration. Over time, the collaboration initiative led to a 17% improvement in on time delivery performance, demonstrating the value of ongoing performance monitoring and commitment to mutual goals. The initiative began in 2021 with a joint assessment of service quality, in which the retailer examined even its own internal operations before agreeing with the supplier on a shared set of service-level indicators. A recurring monthly meeting between the two logistics teams was then established to plan the following month's activities; the commercial department was deliberately excluded from these meetings, allowing the parties to align on service without commercial negotiations interfering with service alignment. Systems investment remained limited, while the monitoring of ongoing activities required more sustained effort. Interviewees noted that early operational gains helped consolidate trust between the two teams and created the conditions for broader information sharing, which, in turn, opened the way to further collaborative projects.

4.1.2 C2 (B) – centralised dispatch advice

A logistics provider launched a collaboration initiative to centralise dispatch advices for multiple suppliers managed within the same logistics platform. This initiative aimed to streamline communication, particularly with smaller producers and improve data accessibility and operational coordination.

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Table 4 Adoption of collaboration mechanisms across the 15 cases

		Cases of collaboration initiatives														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Successful (S); failed (F)	S	S	S	S	S	S	S	*F*	*F*	*F*	S	S	S	S	*F*
Category	**Mechanism**															
Planning and control methods	Joint planning	x	x	x		X	x	x	–			x	x	x		
	Joint decision-making						x						x			–
	Joint performance management	x	x	x	x	x		x		–		x	x	x		
	Joint problem-solving				x			x	x		–				x	–
	Goal congruence	x		x	x	x	x	x	x	x	x	x	x	x	x	–
	SMART goals	x										x	x	x	x	
Workflow/activity structure	Flow synchronisation		x	x		x	x	x			x					
	Process integration		x	x		x					x	x			x	
	Standardisation of collaborative procedures	x	x	x		x	x					x	x		x	
Organisational structure	Cross-organisational teams						x					x		x		
	Cross-functional teams	x										x	x			
	Co-location of personnel															
	Contractual agreements on roles and conditions															
Communication and information flow	Information sharing	x	x	x	x	x	x	x		–		x	x	x	x	
	Standardisation of information technology		x			x					x			x	x	
	Shared technology and business platform		x			x					x					
	Database															
	Data mining techniques															
Product flow	Asset and resource sharing			x												
Management methods	Agile management															
	Continuous improvement		x										x		x	
	PDCA cycle implementation															
Power and leadership structure	Top management support	x	x											x	x	
	Leading by example															
	Transactional leadership															
Risk and reward structure	Incentive alignment		x	x	x	x	x		–	–	x		x	x		–
	Risk and revenue sharing	x	x	x					–	–	x			x		
	Relationship-specific investments	x	x	x	x	x		x			–	x	x	x		
	Performance improvement awards															
Culture and attitude	Vision sharing															
	Trust	x	x	x		x	x		–	–	–	x	x		x	–
	Inter-organisational team-building activities	x	x										x	x	x	
	Collaborative communication										–	x			x	–

Note(s): "x" = mechanism adopted; "–" = mechanism not adopted but identified by respondents as a missing condition for the initiative's success; blank cell=mechanism neither adopted nor mentioned; cases in bold refer to successful initiatives (S) and cases in italics to failed ones (F)
Source(s): Authors' own work

The adoption of RFID technology enabled faster processing of incoming goods, ensuring picking accuracy and timely delivery. Although the initiative initially faced trust-related barriers, it gradually expanded to include the entire supplier base. This case illustrates how a collaborative approach, supported by enabling technologies, can overcome initial resistance and scale over time. The initiative started with a one-to-one configuration, as low initial trust and suppliers' concerns about the cannibalisation of product references limited wider participation; to signal its commitment, the logistics provider initially absorbed the service costs as a growth strategy. Process integration through a shared business platform was established first, followed by the standardisation of routines and information-technology requirements as further suppliers were brought in. The application of RFID tags to goods arranged on ventilation interlayers allowed the retailer to skip the manual verification of goods on arrival, and managers reported that the operational gains this produced, particularly the reduction in goods-in processing time, made the case for extending the scheme progressively to the full supplier base.

4.1.3 C3 (B) – consignment stock

A consignment stock strategy was implemented to manage seasonal demand fluctuations. The producer supplied goods in advance to the retailer's DC and retained inventory ownership, while the retailer agreed to retrieve stock when needed. The initiative was underpinned by a strong emphasis on transparency, as noted by the retailer*: "Transparency is the key for creating synergies within the supply chain, along with trust*". This case highlights the importance of open communication and

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Table 5 Summary of mechanism adoption across successful and failed cases of collaboration initiatives

Mechanism	# of cases mentioning the mechanism	Present in successful cases	Present in failed cases	Identified as missing in failed cases
Goal congruence	14	10	3	1
Information sharing	12	11		1
Incentive alignment	11	7	1	3
Trust	12	8	–	4
Joint planning	10	9	–	1
Joint performance management	10	9	–	1
Relationship–specific investments	10	9	–	1
Standardisation of collaborative procedures	8	8	–	–
Process integration	6	5	1	–
Risk and revenue sharing	7	4	1	2
Joint problem-solving	6	3	1	2
Flow synchronisation	6	5	1	–
SMART goals	5	5	–	–
Standardisation of information technology	5	4	1	–
Inter-organisational team-building activities	5	5	–	–
Top management support	4	4	–	–
Collaborative communication	4	2	–	2
Joint decision-making	3	2	–	1
Cross-organisational teams	3	3	–	–
Shared technology and business platform	3	2	1	–
Continuous improvement	3	3	–	–
Cross-functional teams	3	3		
Asset and resource sharing	1	1	–	–
Vision sharing	0			
Co-location of personnel	0			
Contractual agreements on roles and conditions	0			
Database	0			
Data mining techniques	0			
Agile management	0			
PDCA cycle implementation	0			
Leading by example	0			
Transactional leadership	0			
Performance improvement awards	0			

Note(s): *(The final column reports mechanisms that respondents in failed initiatives explicitly identified as missing conditions for the success of the initiative, corresponding to the "–" notation in Table 3; it does not report mechanisms that were simply not adopted or not mentioned, which are left blank. The first column is accordingly the sum of the Three columns that follow it.)
Source(s): Authors' own work

data sharing in collaborative initiatives. The success of this initiative was attributed to the sharing of accurate sales forecasts, which improved supply chain visibility, responsiveness and minimised delays. The scheme was set up in Sardinia to level seasonal demand peaks, with a consignment stock owned by the producer but dedicated exclusively to the retailer. The exchange of demand forecasts came first, enabling the synchronisation of flows and the integration of their processes and allowed the producer to increase output without the risk of being left with excess inventory. Respondents noted that both parties had accepted a significant financial commitment, a willingness they attributed to the trust built during the earlier phases of the relationship; respondents identified improved visibility over the consignment stock as the main area still to be developed.

4.1.4 C4 (B) – order size optimisation

The collaboration aimed to increase the average order size and to reduce order frequency to reduce transportation costs and improve operational efficiency. By consolidating orders and streamlining the replenishment process, the retailer and supplier improved synergies with the logistics providers, achieving higher vehicle utilisation rate and better order fulfilment by increasing the number of full palettised unit loads. The collaboration initiative emphasised the importance of continuous communication and alignment on KPIs (key performance

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Table 6 Placement of mechanisms within the Four phases: evidence from the case narratives

Phase	Mechanism	Illustrative cases and rationale for the phase placement
Inception	Goal congruence	Agreed before any joint operational activity began: in C1 the partners committed to service rather than logistics cost before the monthly planning meetings started. In C9 (F), by contrast, the initiative proceeded without a shared understanding of what each party stood to gain, and the alignment needed to proceed was never achieved
	Information sharing	An exchange of objectives and forecasts that preceded operational integration: in C3 the exchange of demand forecasts came first and enabled the later synchronisation of flows. In C9 (F) the suppliers' unwillingness to share operational data with direct competitors undermined the initiative
	Top management support	Executive backing determined from the outset whether resources were made available and whether the initiative was taken seriously at operational levels: in C13 the initiative could start only once it had been approved by the retailer's commercial office
	Trust	The level of trust at the outset set the scope within which an initiative could begin: in C14 the partners moved to implementation only once mutual trust had been established, whereas in C9 and C10 (F) it never moved beyond the initial calculative stage
Development	Incentive alignment	Settled when the operating arrangement was specified and it became concrete who would gain what: in C13 the mutual benefits had to be defined before the initiative was approved. In C8 (F) the objective was shared, but the partners could not agree on how the benefits would be distributed
	Relationship-specific investments	Committed as the partners moved from agreement to joint activity, first in lighter forms: in C1 dedicated reporting routines and joint logistics protocols followed the first monthly review meetings. In C10 (F) neither party committed dedicated resources, and the initiative faded once early difficulties arose
	Joint performance management	Introduced once joint activity was under way, to monitor and adjust the new arrangement: in C4 regular KPI reviews maintained alignment as the new replenishment routine bedded in
	Flow synchronisation	Depended on the information exchanged at inception: in C3 the synchronisation of flows was enabled by the prior exchange of demand forecasts
	Process integration	Preceded the more demanding arrangements of execution: in C2 processes were first integrated with a single partner through the shared platform, before routines were standardised and further suppliers brought in
	SMART goals	Translated the objective agreed at inception into measurable targets once the scope of the joint activity had been defined: in C12 the joint forecast was concentrated on the ten highest-rotating references
	Inter-organisational team-building	Accompanied the first joint activities, before full implementation: in C14 joint working tables were used to understand the partners' motivations, and implementation followed only once mutual trust had been established
	Collaborative communication	Direct channels between the partners' operational functions, established as the working mechanism of the initiative: in C14 direct dialogue, rather than the technology itself, was the missing ingredient built before implementation. In C15 (F) respondents identified direct communication between logistics managers as the missing condition
	Risk and revenue sharing	Took hold only once a relational baseline existed: in C3 the reciprocal financial commitment rested on trust built in earlier phases, whereas in C8 and C10 (F) the division of benefits was raised before that baseline existed and became an obstacle rather than a support
Execution	Joint planning	Presupposed the trust and routines built in the earlier phases: in C5 the supplier's order proposals became fully operational only after a Six-month pilot, an arrangement that interviewees said presupposed established trust and process standardisation
	Joint decision-making	Required an operating policy already agreed and tested: in C6 the handling of delivery advances and postponements was agreed between the retailer's flow office and the logistics provider and tested in a Four-week pilot before its extension to the network
	Joint problem-solving	Exercised while the arrangement was running, and dependent on commitment built earlier: in C14 that commitment proved decisive in resolving downstream problems, whereas in C10 (F) neither party acted when early difficulties arose and the initiative faded
	Cross-organisational and cross-functional teams	Institutionalised collaboration once the terms of the initiative had been settled: in C13 teams between the Two logistics functions were set up after the mutual benefits had been defined, supporting the transparent sharing of reordering forecasts

(***continued***)

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Table 6

Phase	Mechanism	Illustrative cases and rationale for the phase placement
	Shared technology and business platform	Extended beyond a first partner only once reliability had been demonstrated: in C2 the platform reached the full supplier base after consistent performance and data security had been shown. In C10 (F) an existing EDI infrastructure did not suffice where the relationship had not matured
	Collaborative function autonomy	Critical once operational decisions had to be taken without commercial arbitration: in C6 bypassing the supplier's customer service accelerated execution, whereas in C15 (F) pre-existing commercial agreements prevented the operational actors from acting
	Asset and resource sharing	The most demanding form of commitment, presupposing the earlier phases: in C3 the consignment stock dedicated to the retailer rested on a financial commitment that respondents attributed to trust built earlier; in the other cases it remained an aspiration for a later stage
Evolution	Standardisation of collaborative procedures	Not part of the initial agreements, but introduced to extend an initiative that had proved itself: in C5 a standardised set of routines was codified to extend the VMI model to further producers
	Standardisation of information technology	Arose as the collaboration was extended beyond its original scope: in C13 the retailer introduced RECADV as the relationship developed, a practice described by interviewees as unplanned and not part of the original contract
	Continuous improvement	Ongoing refinement of arrangements that had already stabilised: in C12 successive initiatives intensified the relationship to the point that the partners planned to introduce VMI

Note(s): (F) denotes a failed initiative. The cases cited are illustrative of the placement; the full distribution of each mechanism across the 15 cases is reported in Table 4. Continuous mechanisms are listed at the phase in which they were first introduced, their subsequent role being discussed in Section 5; Collaborative function autonomy is the One entry with no counterpart in Table 4, having been drawn from the interview narratives
Source(s): Authors' own work

indicator) between the parties to ensure mutual benefits and sustained performance improvements. The initiative originated from a manufacturer's request to reduce the fragmentation of the retailer's weekly orders, which was inflating transport and handling costs on both sides. Working strictly at the operational level and without touching the commercial terms of the relationship, the retailer defined a rotation threshold and rounded the number of replenishment shifts per period, preserving the agreed service level while raising vehicle saturation in coordination with the carrier. Both parties held regular meetings to review and adjust KPIs, which interviewees described as important for maintaining alignment as the new replenishment routine bedded in.

4.1.5 C5 (C) – Vendor managed inventory implementation

The introduction of VMI enabled a closer integration between the retailer and its suppliers. Through VMI, suppliers took responsibility for managing inventory levels, which led to improved product availability and a reduction of backlogs. One manager noted, *"The format of the service to be offered to each customer is different and increasingly complex. The challenge now is to go back to development,"* emphasising the evolving nature of customer service and supply chain models. The VMI system also enhanced efficiency, allowing the retailer's purchasing team to focus on optimising other logistics processes, such as receiving activities and delivery frequency reduction. The initiative ran through a six-month pilot phase before becoming fully operational: the supplier issued order proposals that the retailer's buyers confirmed, modified or rejected, while the retailer transmitted daily inventory reports in return. Interviewees emphasised that this reciprocal arrangement presupposed established trust and a high degree of process standardisation; jointly defined KPIs were put in place to monitor supplier performance and sustain the alignment between the two parties. Where relationships were already strong, the VMI and centralised dispatch-advice initiatives were integrated, and a standardised set of routines was codified to extend the model to further producers; the resulting reduction in delivery frequency also lowered CO_2 emissions.

4.1.6 C6 (D) – service level optimisation

The retailer launched a collaborative initiative with the logistics provider providing shipments for multiple suppliers to improve service level through better communication and alignment of delivery schedules (bypassing the communication with suppliers). The initiative focused on ensuring timely deliveries and efficient transportation. The 3PL played a key role in facilitating rapid responses to delivery adjustment requests, which contributed to smoother operations and a reduction in delays. As a result, the collaboration enhanced both service quality and cost-effectiveness. The retailer's flow office and its main 3PL agreed that advance and postponement requests would be handled directly at the logistics provider's facility, bypassing the supplier's customer service whenever no additional cost was involved. Forty-four suppliers were selected on the basis of the carrier's willingness to take responsibility for them and were informed of a test phase; only one declined and was excluded. The pilot was launched on a single distribution centre in February 2024 and, after a successful four-week trial, was progressively extended in March 2024 to the retailer's entire network, reducing supplier delivery times and delays at the point of sale while giving the 3PL greater scope to optimise transport.

4.1.7 C7 (D) – seasonal inventory management

To address supply chain challenges during the summer peak season, the retailer introduced a pre-buffer stock initiative (anticipated stockpiling). By increasing inventory a few weeks before the peak season, the retailer was able to mitigate delays during high-demand periods. As one manager explained, *"The*

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aim was not a reserve, the aim was to prevent", emphasising a proactive rather than reactive approach to inventory management. The initiative led to a significant reduction in late deliveries and contributed to improved service levels in terms of fill rate. The initiative was prompted by the shortages of transport and product experienced during the summer of 2022, which the partners addressed the following year by pre-positioning around a thousand pallets of water in May, ahead of the peak. Planned jointly with the supplier as additional weekly inputs, the buffer was held strictly as a reserve against delivery delays rather than as ordinary stock cover, and it was drawn down by the end of July. Having significantly reduced late deliveries during the peak, and with the buffer largely unused, the partners chose to close the initiative at the end of 2023 rather than extend it to other areas.

4.1.8 C8 (D) – fixed delivery schedule – a failed collaboration

A supplier proposed a fixed delivery schedule to a milk manufacturer, aiming to streamline logistics inbound and outbound flows. However, the initiative failed due to increased lead times and poor inventory management. The attempt to standardise deliveries without considering demand fluctuations led to overstocking, especially during promotional periods. Despite efforts to streamline deliveries, the lack of flexibility resulted in operational inefficiencies and the initiative was ultimately discontinued. Advanced in 2023, the proposal was to concentrate deliveries on a single day per week and raise order sizes to full loads. The retailer's analysis of incoming volumes showed, however, that full loads could be composed for only two of its four distribution centres and that a fixed weekly schedule would lengthen lead times and inflate inventory, with a particular risk of overstocking around promotional periods. Interviewees on both sides acknowledged that the objective was shared and that both parties had actively sought a workable solution; what proved decisive, in their account, was the inability to agree on how the resulting benefits would be distributed between them.

4.1.9 C9 (E) – upstream supplier warehouse – a failed collaboration

This initiative aimed to establish an upstream warehouse to consolidate orders from multiple suppliers, potentially benefiting both the logistics provider and the retailer. However, the initiative failed due to a lack of cooperation and trust among the suppliers. Their unwillingness to align processes and share operational data undermined the initiative, highlighting the critical role of inter-organisational trust in collaborative logistics. Proposed by the retailer, the initiative sought to aggregate the stocks of ten suppliers handled by the same logistics operator into a single upstream warehouse. The benefits were clearly defined for the retailer–logistics provider dyad, the former gaining easier management of its unloading slots and the latter the opportunity for direct delivery, but the suppliers saw no comparable advantage and would have had to disclose their operational procedures to direct competitors. Because the interests of these key stakeholders were not addressed from the outset, the alignment needed to proceed was never achieved.

4.1.10 C10 (F) – Vendor managed inventory implementation – a failed collaboration

The VMI initiative, aimed at improving inventory management through better integration of suppliers into the retailer's supply chain, encountered resistance from suppliers. Despite initial interest, the lack of commitment from the suppliers prevented the initiative from reaching its full potential. The suppliers did not fully engage with the collaborative nature of the initiative, which ultimately led to its failure. The retailer, whose suppliers already exchanged data via EDI, regarded VMI as a logical next step and presented it to them in exchange for financial compensation. Although many suppliers initially agreed, attracted by the prospect of smoother material flows, genuine commitment never materialised: they came to regard the scheme as a condition imposed by the retailer rather than a mutual arrangement, and when early difficulties arose neither side acted to repair the relationship. Interviewees on the supplier side described a gradual disengagement: once early difficulties surfaced, neither party invested in resolving them and the initiative faded without a formal decision to discontinue it.

4.1.11 C11 (G) – service level optimisation

This initiative focused on enhancing service levels through the integration of cross-functional teams. Direct communication between the retailer and suppliers was prioritised, and joint customer teams were established to foster alignment. As one producer noted, *"Work has been carried out in a complementary way between external and internal supply chains to promote alignment*", highlighting the importance of coordinated efforts across different supply chain functions. The collaboration led to improved service levels and operational efficiency. The producer's approach took shape over more than a decade. In 2011, in response to negative feedback from retailers, it created cross-functional customer teams spanning finance, supply chain and trade marketing, shifting the relationship from a siloed buyer–key-account contact towards an integrated, multi-function one; in 2018 it went further, integrating its order-management system with the wider supply chain. Operationally, the parties ran weekly joint planning within an agreed delivery limit and reconciled service-level metrics monthly to remove discrepancies in how punctuality was measured. The model was piloted with three customers; interviewees described the routines established in those relationships as the template on which the subsequent standardisation and extension to further retailers was based.

4.1.12 C12 (G) – service level optimisation

Through joint forecasting and continuous information sharing, the retailer and supplier were able to optimise inventory management and enhance service levels. The consistent alignment of demand forecasts and the continuous monitoring of performance metrics ensured that both parties could meet customer expectations consistently. The initiative was triggered by an on-time delivery level that had fallen to a critical 48%. Monthly alignment calls were introduced, and a joint forecast was built for the ten highest-rotating references, which alone accounted for around 60% of the retailer's volume and were then treated by the demand team as reliable estimates. Respondents emphasised the commitment of time and personnel as a precondition for starting such work, and

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described how successive initiatives, conducted sequentially, intensified the relationship over time, to the point that the partners planned to introduce VMI from September 2024.

4.1.13 C13 (H) – collaborative planning

This initiative aimed to improve the reordering process by aligning on mutual benefits for both the retailer and the supplier. Regular meetings were held to exchange information and adjust KPIs, ensuring that both parties had a clear understanding of each other's needs. The collaboration initiative highlighted the importance of resource allocation and inter-organisational collaboration in achieving successful outcomes. Proposed by the producer to optimise the reordering process, the initiative depended on defining the mutual benefits at the outset, fewer trucks in transit and higher logistics discounts, since a clear alignment of incentives was a prerequisite for approval by the retailer's commercial office. Inter-organisational teams were set up specifically between the two logistics functions, which required a commitment of time and people on both sides and supported the transparent sharing of reordering forecasts. As the relationship developed, the retailer introduced RECADV, a form of document dematerialisation still uncommon in Italy at the time, a practice that interviewees described as unplanned and not part of the original contract, but as a direct expression of the trust that had built up between the two teams.

4.1.14 C14 (H) – EDI implementation

The introduction of EDI was proposed to streamline communication and reduce operational friction. However, the producer noted, "*Dialogue with customer supply chain is difficult due to internal trade barriers,*" indicating the challenges of adopting new systems and processes within established business structures. The initiative faced hurdles in gaining full supplier engagement, but it ultimately highlighted the value of building trust and direct communication in enhancing supply chain integration. Conducted with around ten customers, the initiative opened with a deliberate phase of relationship-building, since the missing ingredient was direct dialogue rather than the technology itself. Surveys and joint working tables were used to understand customers' motivations, revealing that several had in fact already adopted EDI without the supplier's knowledge, while others were hesitant to change established practices. Only once mutual trust had been established did the parties move to implementation, and interviewees noted that the commitment built during that earlier phase later proved decisive in enabling the partners to surface and resolve downstream problems, including the redesign of exhibitor order handling through dedicated master data.

4.1.15 C15 (I) – loads consolidation – a failed collaboration

This failed collaboration aimed to consolidate deliveries to improve efficiency. However, it failed due to resistance from suppliers, who were unwilling to share operational information with competitors. As the producer stated, "*The key point to work on to develop future goals is pure communication between logistics managers on both sides to create tangible added value*", underlining the central role of transparent communication and mutual benefit in fostering collaboration. Despite its failure, the initiative offered valuable insights on the necessity of aligned objectives and trust between partners. The aim was to create a round trip in which a single carrier delivered goods from the manufacturer to the retailer and then served other points of sale. The decisive obstacle was contractual: neither party could readily determine who should provide the carrier, as both were bound by pre-existing commercial agreements that protected their incumbent hauliers. Interviewees pointed to a further structural problem: the third-party logistics provider, whose role was central to making the arrangement work, had been excluded from the pre-contractual discussions, and without its input the parties were unable to agree on how responsibility for the deliveries should be distributed.

4.2 Cross-case analysis

This section integrates and expands upon the findings from the 15 collaboration initiatives. The analysis highlights recurring patterns, contrasting these with the relevant literature and pointing out practical gaps and emergent concepts. To provide a synthetic overview of the empirical evidence, Table 5 reports the use and impact of key mechanisms across the full sample, distinguishing between successful and failed collaboration initiatives. Table 5 is presented as a descriptive overview to orient the reader, summarising where mechanisms were present or absent across the cases; it is not the primary analytical instrument. The analysis that follows rests on the qualitative interview narratives, and the cross-case counts are used only to flag recurring patterns, which are then interpreted in context rather than treated as a measure of a mechanism's importance. The cross-case analysis is structured in two parts: Section 4.2.1 examines the mechanisms that appear most consistently across cases, analysing their role and the conditions under which they operate; Section 4.2.2 examines the temporal patterns identified across cases, that is, how the activation and relevance of mechanisms shifts across the phases of a collaborative initiative, which provides the empirical grounding for the time-based framework presented in Section 5.

4.2.1 Mechanisms across successful and failed initiatives

A key finding across cases is the central importance of clearly defined and shared objectives at the earliest stages of collaboration. Goal congruence consistently surfaced as a requisite for aligning expectations and laying the foundation for effective partnership and coordination. This result confirms previous research identifying goal alignment as essential for initiating and sustaining collaboration (Simatupang and Sridharan, 2005; Cao and Zhang, 2011). As evidenced across many of the initiatives, particularly the successful ones, goal congruence emerged as a critical mechanism for fostering a shared sense of purpose and reducing misunderstandings over time (present in 13 cases overall, including 10 successful initiatives). In the four failed initiatives, goal congruence was either nominally present but only superficially established (C8, C9, C10) or absent altogether (C15): respondents described partners entering the initiative with divergent expectations that, even where a shared objective had been formally stated, were never genuinely reconciled. This pattern suggests that goal congruence functions primarily as an inception-phase mechanism, one whose absence at the outset appeared, in these cases, to create structural vulnerabilities that later-phase mechanisms cannot compensate for. A complementary insight emerges from reading not only the mechanisms that were

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adopted, but also those that respondents explicitly identified as missing (denoted by "–" in Table 4). In the failed initiatives these entries are especially revealing, as they capture the conditions participants themselves regarded as decisive and whose absence they associated with breakdown. The clearest instance concerns the distribution of benefits among partners, repeatedly flagged in the failed initiatives as the missing condition that proved decisive, a pattern examined in detail at the end of this section.

Information sharing is another mechanism that spans all phases of collaboration. Transparent, timely and ongoing communication of both operational data and key performance metrics emerged as indispensable. Across the cases, respondents consistently highlighted information sharing as an essential component of effective collaboration, particularly in the more successful initiatives (cited in 12 cases, present in 11, all successful). Many interviewees emphasised that not only regular information exchanges, but also structured feedback mechanisms and formal coordination meetings, were critical for ensuring that partnerships could adapt to disruptions or evolving needs. This aligns with literature that stresses the sustained need for information exchange to support joint decision-making and responsiveness throughout the collaborative lifecycle (Salam, 2017; Simatupang and Sridharan, 2002). Sharing information such as forecasts, order status, shipping details or maintenance plans can improve visibility and mutual understanding, helping partners to quickly resolve issues and manage expectations (Oyedijo *et al.*, 2021). However, the nature of information sharing evolved across phases. In the inception phase, it involved primarily high-level data, strategic objectives, partner profiles and initial performance baselines. In the development and execution phases, it deepened to encompass operational data such as forecasts, delivery schedules, stock levels and KPI results. This progression was visible in Case C3, where initial information sharing focused on demand planning, and was then extended to support the synchronisation of flows and the integration of processes, although respondents identified visibility over the consignment stock as the main area still to be developed. In Case C12, the continuous alignment of demand forecasts was explicitly described by respondents as a mechanism that grew in precision and mutual trust over successive planning cycles.

Alongside information sharing, trust acts both as a foundation and as a continuously developed asset throughout the relationship. Practitioners consistently underscored that trust is essential to facilitate honest disclosure of potential issues, negotiate compromises and foster goodwill during challenging moments. Across many of the cases, respondents highlighted trust as both a prerequisite and an outcome of collaboration. This pattern was particularly evident among the successful initiatives (cited in 12 cases overall, including 8 successful initiatives). The temporal trajectory of trust was particularly visible across the cases. In the inception phase, trust was largely calculative, based on the reputation of partners and initial positive signals. As collaborations progressed into the development and execution phases, trust was grounded in shared experience and demonstrated reliability. Case C2 illustrates this trajectory clearly: the initiative initially faced explicit trust-related barriers, with smaller suppliers reluctant to share data through a centralised platform. Over time, as the logistics provider demonstrated consistent performance and data security, resistance diminished and the initiative expanded to include the full supplier base, a process that respondents described as requiring sustained effort over multiple months. In the failed cases, this trust trajectory was interrupted: in C9 and C10, trust never progressed beyond the initial calculative stage because partners withheld operational data, preventing the deeper integration that the initiatives required.

Additional mechanisms cited as vital enablers include top management support, collaborative communication, flow synchronisation (e.g. harmonisation of delivery schedules) and relationship-specific investments. Participants described how visible executive backing improved legitimacy and resource allocation, while standardised collaborative procedures enabled a smoother integration of operational practices (Daugherty *et al.*, 2006; Mandal *et al.*, 2016). Top management support was consistently described as an inception-phase requirement: its presence or absence at the outset shaped whether resources were made available and whether the initiative was taken seriously at operational levels. Relationship-specific investments, by contrast, were more characteristic of the development phase. They represented the tangible commitment of both parties to building collaborative infrastructure, and their presence in 9 of the 11 successful cases underlines their role as a transition mechanism between initial alignment and operational execution. The value of this mechanism is reinforced by its absence in C10, a failed initiative in which respondents explicitly identified relationship-specific investments as a missing condition (denoted by "–" in Table 4). Although the suppliers initially agreed to the scheme, neither party committed the dedicated resources that would have signalled genuine mutual commitment; the initiative came to be perceived as imposed by the retailer rather than jointly owned, and it faded once early difficulties arose, with neither side investing to resolve them. The contrast with the successful cases suggests that relationship-specific investments are not merely correlated with success, but function as a tangible marker of the reciprocal commitment on which the transition from alignment to execution depends.

Despite this extensive range of mechanisms, some elements widely cited in the literature found little resonance in the field. Vision sharing, while conceptually valuable (De Angelis *et al.*, 2018), was absent in all cases. Similarly, performance improvement awards and personnel co-location, although often proposed in academic frameworks, were rarely implemented due to contextual constraints or resource limitations. This gap between theoretical prescription and empirical practice is itself informative: it suggests that some mechanisms proposed in the literature may presuppose a level of relational maturity or organisational slack that many FMCG firms do not possess, particularly in the early phases of collaboration. The absence of these mechanisms may not represent a failure of intent, but a realistic response to operational constraints.

Conversely, mechanisms like incentive alignment, process integration, team-building activities and SMART goals were often applied as tactical responses to phase-specific needs, especially during the development or scaling-up stages of collaboration. Their deployment was usually tied to achieving distinct milestones, addressing bottlenecks or supporting transitions, highlighting that not all enablers must remain

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constantly in effect. This finding has direct implications for how firms should plan collaborative initiatives: rather than attempting to implement all mechanisms simultaneously, a phased approach that introduces mechanisms in response to the current developmental needs of the relationship is more consistent with observed practice and more likely to succeed.

Internal and external alignment emerged as another set of cross-cutting mechanisms. The establishment of cross-functional and cross-organisational teams was key to integrating diverse perspectives, facilitating joint problem-solving and promoting adaptive learning, particularly at decisive moments in the evolution of the collaborative relationship. These teams were predominantly an execution-phase mechanism: they were introduced once the relational and operational groundwork had been established, and served to institutionalise collaboration within the day-to-day organisational structure of both partners. Their relative rarity across cases (present in only three cases each) suggests that they represent an advanced form of collaborative integration that requires prior phases to be successfully completed.

Asset and resource sharing and technological enablers like joint IT platforms had limited adoption due to high upfront investments and coordination complexity. This suggests a persistent gap between theoretical models and practical constraints. Temporally, these mechanisms were consistently described as aspirations for a later stage of the relationship: partners acknowledged their potential value but were unable or unwilling to commit to them until the collaborative relationship had demonstrated sustained performance across earlier phases. This further supports the argument that mechanism deployment must be sequenced according to relational maturity rather than driven by the logic of any given collaboration model.

Finally, risk and revenue sharing illustrates how the same mechanism can either enable or obstruct collaboration depending on when it is introduced. In C8 and C10, the question of how financial benefits would be shared was raised early, before a sufficient level of trust had developed: in C8 the partners could not agree on how to divide the resulting benefits and the initiative collapsed, while in C10 the compensation offered by the retailer was perceived as an imposed condition rather than a mutual arrangement, and commitment never materialised. In C9, similarly, the advantages were clear for the retailer and the logistics provider but not for the suppliers, who saw no comparable gain and disengaged. In the successful cases, by contrast, risk- and revenue-sharing arrangements were introduced only later in the relationship, once trust and a shared operational baseline had been established (as in C3, where the reciprocal financial commitment rested on trust built during earlier phases). This contrast should nonetheless be read with caution: the cases concerned also differ in the inclusion of relevant stakeholders and in how the distribution of benefits was handled, and timing cannot be separated from these conditions. What the comparison suggests is that risk and revenue sharing is a powerful enabler whose effect is conditional on the relational state of the partnership at the moment it is introduced, and that, raised before a relational foundation is in place, it can become a barrier rather than a support to collaboration.

4.2.2 *Temporal patterns across cases*

A consistent pattern emerging from the cross-case analysis is that the mechanisms adopted across the 15 initiatives were not uniformly present throughout the lifecycle of a collaboration, but tended to be introduced and to become operative at recognisable stages. This temporal patterning was identified through the narrative structure of the interviews, in which respondents were explicitly invited to describe how their initiatives had developed chronologically, i.e. what had been agreed at the outset, what had been added or modified as the relationship progressed, and what had proved difficult to sustain or had been abandoned. The analysis of these narratives, combined with the questionnaire data, suggested four recurring temporal clusters that correspond to the four phases of the framework proposed in Section 5.

In the earliest stage of initiatives, typically covering the period from initial contact through the formalisation of a collaboration agreement, respondents across successful cases consistently described the same set of mechanisms as early conditions for moving the collaboration forward: goal congruence, an initial modality of information sharing, top management endorsement and early trust-building. These mechanisms were not described as having been introduced after deliberate analysis of a framework, but as having emerged naturally as the first requirements of any serious collaborative engagement. Their absence in failed cases was frequently described retrospectively as the root cause of subsequent breakdown. In C9, the respondent noted that the initiative had proceeded without ever establishing a shared understanding of what each party stood to gain, which meant that cooperation was never genuinely internalised. In C8, although the objective was formally shared, the partners' expectations about what each would gain had not been reconciled, so that when operational difficulties emerged they had no shared reference point from which to negotiate adjustments.

In the second temporal cluster, covering the early operational period, once an agreement was in place and joint activities had begun, mechanisms related to structural commitment and operational alignment became prominent. Incentive alignment, relationship-specific investments, joint performance management, flow synchronisation and inter-organisational team-building were all described as mechanisms that partners introduced or formalised as they moved from agreement to execution. Case C1 illustrates this pattern: the initiative began with shared service level targets, but it was only after the first monthly review meetings, where performance data were jointly examined, that both parties began making the relationship-specific investments (dedicated reporting routines, joint logistics protocols) needed to achieve the 17% improvement in on-time delivery that the case ultimately produced.

In the third cluster, corresponding to the formalised operational phase of initiatives, respondents described the activation of more structurally demanding mechanisms: joint planning, joint problem-solving, formalised joint decision-making, cross-organisational teams and shared technology platforms. These mechanisms presupposed a degree of mutual trust and operational familiarity that earlier phases had established. Case C5 exemplifies this: the transfer of inventory responsibility to the supplier required not only a technical platform, but a level of transparency and mutual confidence in

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each other's operational capabilities that had been built through prior information sharing and joint performance management. The introduction of these mechanisms was consistently described by respondents as requiring the prior accumulation of trust and shared routines. They could not have been enacted from the outset.

In the fourth cluster, characterising initiatives that had reached maturity and were being sustained or expanded, mechanisms related to standardisation, continuous improvement and resource sharing came to the fore. These were not described as mechanisms that had been planned from the beginning, but as needs that had arisen as the collaboration deepened. Case C3 illustrates this clearly: standardisation of collaborative procedures had not been part of the initial agreement, but developed as a response to the complexity that grew as the initiative scaled. This unplanned but recognisable development of later-phase mechanisms is consistent with the emergent and adaptive nature of the collaboration described throughout the cases, and supports the argument that the time-based framework captures a real developmental logic rather than an imposed categorisation.

Table 6 summarises this derivation. For each phase it lists the mechanisms assigned to it and, for each mechanism, the evidence from the case narratives that motivates its placement in that phase; the distribution of each mechanism across the cases is reported in Table 4.

Beyond these insights, the cross-case analysis brought out two novel concepts: collaborative function autonomy and the dual role of time.

Collaborative function autonomy describes the degree of independence enjoyed by logistics or operational teams in driving collaboration without interference from commercial departments. Numerous cases revealed that when such teams were empowered to interact directly with their counterparts, collaborative initiatives evolved more efficiently. This autonomy fostered faster decision-making, more flexible responses to unforeseen challenges and smoother information flow. Conversely, when commercial functions became overly involved, focus shifted from process optimisation towards contract negotiation, which could stall or undermine collaboration. Case C15 illustrates the failure mode: the logistics department was unable to circumvent commercial constraints, and the initiative collapsed as a result. In C6, the decision to bypass direct supplier communication and route coordination through the 3PL was described by the respondent as a deliberate act of logistical autonomy that significantly accelerated the pace of improvement, precisely because it removed the commercial negotiation layer from an essentially operational coordination problem. Similarly, in C11, the explicit establishment of joint customer teams, cross-functional structures that operated with a degree of commercial independence, was described by interviewees as what had made possible operational alignment after months of stalled coordination. Taken together, these cases suggest that collaborative function autonomy is not specific to one initiative or context, but reflects a structural feature of how logistics collaboration operates when it is insulated from commercial pressures.

The second concept concerns the dual role of time in SCC. While literature tends to emphasise time as a necessary resource for orchestrating joint activities (Fawcett *et al.*, 2015; Daugherty *et al.*, 2006), the cases studied reveal a more nuanced view. Time enables collaboration in two vital ways: first, as a measurable resource invested in scheduling meetings, aligning processes and executing joint tasks; and second, as a relational enabler, through which trust can grow and relationships can deepen. Managers stressed that meaningful collaboration requires not only time to plan and execute, but substantial elapsed time to allow trust, shared understanding and mutual adaptation to take root. Trust, so often recognised as a cornerstone of collaboration (Salam, 2017), cannot be manufactured instantly but ripens only through sustained, positive engagement. Case C3 illustrates this: process standardisation was not part of the initial agreement but developed through continued dialogue and shared experience. This dual character of time was visible across multiple cases in different ways. In C2, the elapsed time required for trust to develop was explicitly quantified by the respondent: it took approximately six months of consistent performance before the more reluctant suppliers agreed to expand their participation. In C13, the respondent described how the regular joint review meetings, initially experienced as burdensome, gradually became valued as relationship-building occasions in their own right, illustrating how time invested in operational coordination simultaneously accumulates relational capital. In the failed cases, the dual character of time appeared as a diagnostic: in C8 and C10, the initiatives were terminated before sufficient elapsed time had allowed relational foundations to form, suggesting that the decision to discontinue may itself have reflected a misunderstanding of the time requirements of effective collaboration.

These insights collectively suggest that SCC is better understood as a dynamic, adaptive process rather than a linear, time-bounded project with fixed mechanisms. Initiatives that thrive are those where mechanisms are deployed flexibly in response to evolving needs, where teams are granted genuine operational autonomy and where both time and trust are allowed to accumulate and reshape the relationship. The temporal patterns documented in Section 4.2.2, combined with the mechanism-level analysis in Section 4.2.1, provide the empirical foundation for the time-based framework presented in Section 5. The four phases of the framework thus result from the confrontation of an initially theory-informed structure with the temporal clusters identified in the case narratives (Section 3.4).

5. Time-based framework for SCC initiatives

In light of the previous findings, this study proposes a time-based framework designed to support the interpretation of how SCC initiatives develop and evolve over time (see Figure 1). The framework adopts a process-oriented perspective consistent with calls in the literature for more dynamic accounts of inter-organisational relationships (Marty and Ruel, 2024). By highlighting the sequencing and temporal alignment of mechanisms, the framework offers an interpretative lens to understand how collaborative initiatives unfold over time. This emphasis on sequencing and temporal alignment is captured in the notion of "collaborative timing", defined as the strategic alignment of mechanism deployment with the maturity of the collaborative relationship. Collaborative timing reflects two complementary dimensions: relational maturity, referring to

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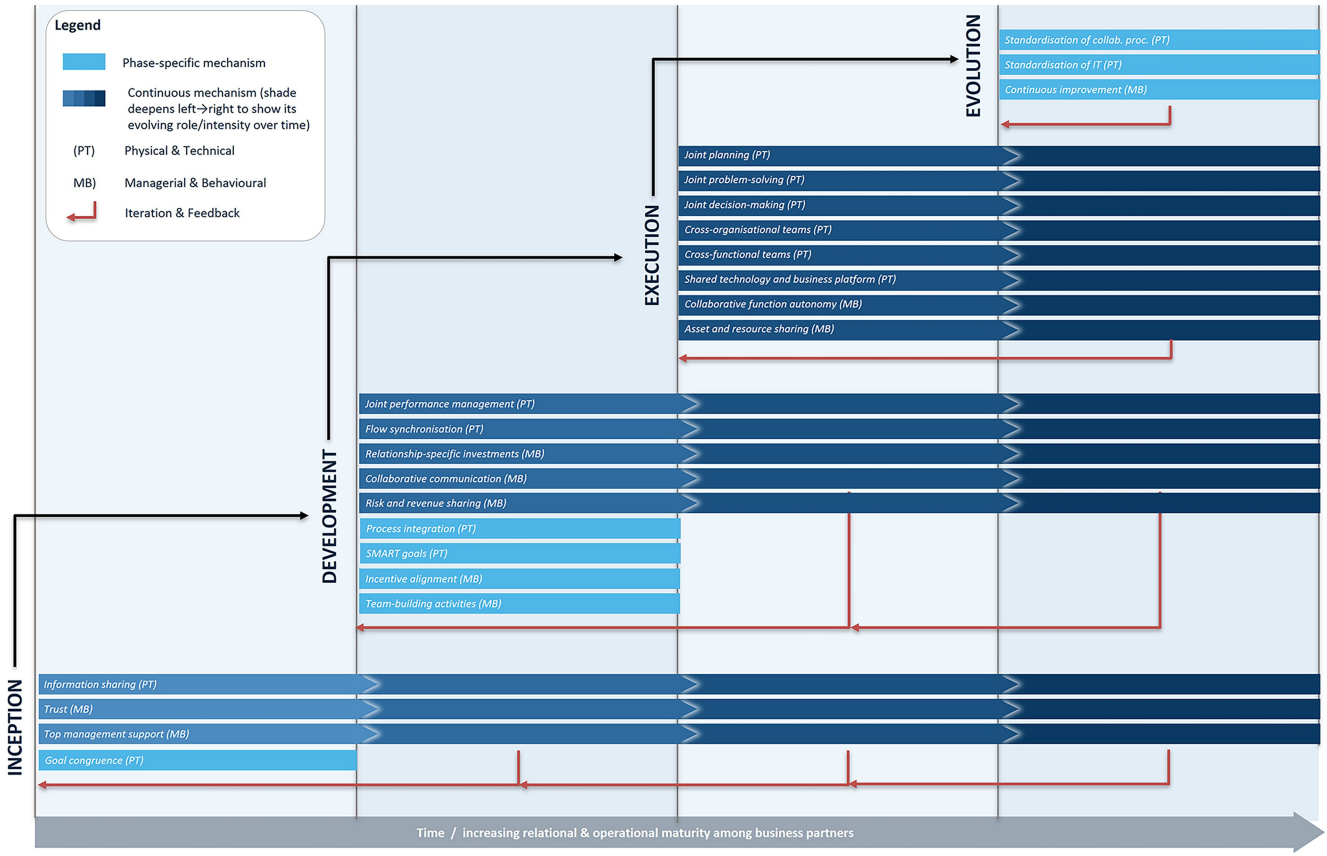
Figure 1 Time-based framework for supply chain collaboration (SCC) initiatives



Note(s): Within each phase, mechanisms are ordered by their salience in the temporal patterns observed across the cases; continuous mechanisms span multiple phases and deepen in shade to indicate their evolving role, while the phases represent a typical developmental logic rather than rigid boundaries, allowing for overlap and iteration&feedback across initiatives, represented by the red arrows
Source: Authors' own work

the level of trust, mutual understanding and commitment between partners, and operational maturity, referring to the degree of process integration, information visibility and coordination capability achieved within the initiative. In the cases examined, mechanisms did not become effective simply because time had elapsed; rather, interviewees described how each phase created the relational and operational conditions that made the next set of mechanisms workable. The framework was subsequently discussed with senior managers from the participating companies in two member-checking workshops, in which the four phases and the placement of mechanisms within them resonated with participants' own experience (see Section 3.4).

5.1 Phase 1: Inception

The inception phase represents the foundation of a collaborative initiative, where the primary objective is to align the strategic goals of the involved organisations, ensuring that all parties share a common vision and direction (D. Lambert *et al.*, 1996). Establishing this alignment early is essential to prevent divergence in expectations and priorities as the collaboration evolves. During this phase, the exchange of critical information starts modestly, but it becomes progressively more significant as the collaboration progresses. Information sharing grows from initial insights to more operational data, such as performance metrics, forecasts and plans, forming the bedrock for continued trust and transparency. Trust itself is a central enabler in this phase. It creates the conditions for open dialogue and reduces perceived risks associated with sharing sensitive data. In addition, strong top management support is vital to maintain strategic direction and allocate necessary resources throughout the collaboration. This executive commitment ensures the initiative stays on track and sustains momentum as it moves into subsequent phases. In the empirical material, this phase is most clearly illustrated by the failed initiatives: in C8 and C9 the absence of a shared understanding of mutual gains, even where an objective had been formally stated, left the partners without a common reference point once operational difficulties emerged, whereas in successful cases such as C1 respondents described how these conditions had been established before operational activities began.

5.2 Phase 2: Development

During the development phase, partners move from initial alignment to the first concrete steps of collaboration, launching relatively limited, lower-commitment initiatives that test the relationship before more demanding arrangements are

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introduced. At this point, aligning incentives and goals is a crucial mechanism to ensure both organisations are equally motivated to invest in and sustain the collaboration. If incentives are not aligned, the collaboration can risk falling into imbalance, leading to potential conflict. Therefore, the development phase is critical for laying down the foundation for a balanced and equitable partnership. Alongside this, joint performance management mechanisms become essential as both parties begin tracking performance through clear, shared metrics, ensuring that goals are being met and enabling timely adjustments when necessary. Relationship-specific investments also begin to appear at this stage, typically in their lighter forms, such as dedicated personnel, joint reporting routines or shared operating protocols, which signal commitment without requiring major capital outlay; these initial investments deepen into more substantial financial, technological and human-capital commitments as the initiative moves into the execution phase. Risk and revenue sharing arrangements are first defined here, establishing a shared stake in the collaboration that is then sustained and rebalanced as the partnership matures. The shared objectives agreed at inception are also translated into SMART goals, and direct channels of collaborative communication are established between the partners' operational functions. In this phase, the partners begin to align their operational processes, such as production schedules and procurement systems, to ensure the synchronisation of activities. In addition, the flow synchronisation mechanism helps coordinate the movement of materials, information and resources across partners, which is crucial for ensuring that the operational processes run smoothly. Finally, inter-organisational team-building activities are also crucial in fostering personal relationships and trust between partners, thereby establishing a cooperative foundation that supports improved collaboration as the initiative progresses. Case C1 illustrates this phase: it was only after the first joint performance-review meetings that the partners committed the relationship-specific investments, dedicated reporting routines and joint logistics protocols, that underpinned the subsequent 17% improvement in on-time delivery.

5.3 Phase 3: Execution

As the initiative enters the execution phase, unifying the implementing and problem-management phases, the collaboration becomes more formalised (Simatupang and Sridharan, 2005). Clear joint planning becomes crucial to streamline efforts and avoid any overlap or miscommunication. This ongoing coordination ensures that resources are allocated efficiently, and adjustments are made in response to evolving needs. Joint problem-solving mechanisms are activated to address emerging challenges, allowing both organisations to bring their expertise and resources to resolve issues collaboratively. In this phase, decision-making also becomes formalised, with clear protocols for how strategic and operational choices are made collaboratively. This ensures that both parties have an equal say in how the initiative moves forward and prevents any conflicts from arising. To support execution, cross-organisational teams are often established. These teams facilitate communication and quicker resolution of issues. Moreover, the adoption of a shared technology and business platform enables seamless data exchange and improves decision-making across the collaboration. It is also at this stage that the relationship-specific investments initiated earlier deepen into more substantial financial, technological and human-capital commitments, as partners build the shared infrastructure needed to sustain the collaboration; where the relationship allows it, this can extend to the sharing of assets and resources, as in the consignment stock of C3. Collaborative function autonomy, particularly within the logistics teams, becomes critical at this stage allowing teams to operate independently and communicate directly with their counterparts, without interference from commercial departments, supports faster execution and reduces bottlenecks. Case C5 exemplifies this phase, as the transfer of inventory responsibility to the supplier presupposed the trust and process standardisation accumulated earlier. The role of collaborative function autonomy is visible in C6, where routeing coordination through the 3PL (bypassing the commercial interface) accelerated execution, and in C11, where joint customer teams enabled operational alignment after months of stalled coordination.

5.4 Phase 4: Evolution

The final phase focuses on consolidating and enhancing the collaboration over time, substituting the original closing phase which entails the end of an initiative (Spekman *et al.*, 1998). At this stage, the partners have established trust, and collaboration becomes more sophisticated, requiring continuous improvement practices and fine tuning. By standardising collaborative procedures, both parties ensure that the most effective practices are adopted, leading to greater efficiency and consistency in future initiatives. The standardisation of information technology also ensures that IT systems across both organisations remain consistent, enabling seamless integration and scalability as the collaboration evolves. As the partnership matures, both partners engage in continuous improvement, constantly refining processes and addressing inefficiencies to optimise the partnership further. "Finally, asset and resource sharing, introduced in the execution phase where the relationship allowed it, becomes essential to sustain cost-efficiency and productivity, as sharing logistics, technology and personnel enables the collaboration to maintain momentum and adapt to new challenges. Such mechanisms are only viable when both trust and strategic alignment are strong, but they offer significant benefits in terms of cost-efficiency and operational flexibility. Overall, the collaborative evolution phase is about sustaining momentum, adapting to change and embedding collaboration into the organisational culture. It marks the transition from initiative-based cooperation to a more strategic, long-term partnership. Case C3 illustrates this phase: the standardisation of collaborative procedures was not part of the initial agreement but developed as the initiative scaled, reflecting the consolidation logic that characterises the evolution phase.

The phases describe a typical developmental logic rather than a fixed sequence. Initiatives moved through them at different rates, and in several cases the partners returned to earlier-phase mechanisms. These returns are represented by the feedback arrows in Figure 1. A key aspect of the framework is the distinction between phase-specific and continuous mechanisms. This distinction extends prior work on

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collaboration configurations (Simatupang and Sridharan, 2005; Cao and Zhang, 2011) by showing that mechanisms follow different temporal trajectories. Continuous mechanisms, once introduced, remain operative across the subsequent phases of the initiative, with their role and intensity evolving rather than receding; they are not all introduced at the outset, but enter at different stages and persist thereafter. Phase-specific mechanisms, by contrast, perform a bounded function within a single phase before receding in salience. While some insights are based on empirical evidence rather than exhaustive quantitative validation, this aligns with observed patterns from practice and literature (Marty and Ruel, 2024).

6. Discussion

6.1 Mechanisms, phases and the temporal dimension

The findings confirm and extend prior SCC research in several ways. Firstly, the centrality of goal congruence, information sharing and trust replicates well-established patterns (Simatupang and Sridharan, 2005; Cao and Zhang, 2011; Salam, 2017). These mechanisms do not function uniformly: they play different roles at different stages. Trust begins as a fragile enabling condition in the inception phase and deepens progressively through accumulated positive interactions and shared experience, a dynamic conception that aligns with relational exchange theory (Daugherty *et al.*, 2006) and extends it by showing how trust interacts with information sharing and relationship-specific investments (not only financial or technical, but also the time partners dedicate to the initiative, foreshadowing the dual role of time discussed below) to create a self-reinforcing developmental trajectory. While this trajectory is broadly consistent with the evolutionary framework of Pomponi *et al.* (2015), the present study goes further by mapping how specific mechanisms interact and sequence across identifiable phases, a level of granularity that prior evolutionary accounts do not provide.

Secondly, the distinction between phase-specific and continuous mechanisms has direct implications for how firms allocate collaborative effort. Prior literature tends to treat mechanisms as present or absent, or rank them without regard to timing (Katsaliaki *et al.*, 2024). This study shows instead that the same mechanism can be critical in one phase and merely supportive in another. Joint performance management, for example, is central in the development phase, establishing shared metrics and alignment, but shifts to a fine-tuning and accountability function in later phases. This temporal modulation has not been systematically addressed in prior SCC research. The closest antecedent is the contingent, dynamic view advanced by Huang *et al.* (2020), who argue that collaborative activities must be realigned as relationships develop; the present study extends this by specifying which mechanisms are implicated at each stage and under what relational conditions. A comparable trajectory characterises risk and revenue sharing. Unlike incentive alignment, which establishes the initial balance of goals and rewards at the development stage, risk and revenue sharing is not settled once and for all: introduced as a structural commitment, it must be continually renegotiated and rebalanced as volumes, costs and operational conditions evolve over the life of the partnership. This is why it operates as a continuous rather than a phase-specific mechanism, and why, as the cross-case analysis showed, its premature introduction can obstruct rather than enable collaboration.

Third, in the failed initiatives, the mechanisms that were missing were concentrated in the inception and development phases, particularly goal congruence, trust and relationship-specific investments, rather than in execution. This supports the argument that early-phase foundations are disproportionately consequential for collaborative outcomes (Lambert *et al.*, 1996; Spekman *et al.*, 1998); our cases provide phase-level empirical evidence of this dynamic in the FMCG logistics context.

6.2 Collaborative function autonomy

A novel empirical insight is the concept of collaborative function autonomy, the degree of independence enjoyed by logistics or operational teams in managing collaborative initiatives without persistent interference from commercial functions. Related ideas appear in work on boundary-spanning roles (Fawcett *et al.*, 2015) and cross-functional integration (Barratt, 2004), but the specific dynamic identified here, where commercial function involvement actively undermines operational collaboration, has not been explicitly theorised. When logistics teams can interact autonomously with partner counterparts, decision-making is faster and adaptations respond to operational rather than commercial imperatives. Conversely, commercial dominance shifts focus towards contractual negotiation and short-term cost allocation, conditions that work against the relational investment that effective collaboration requires. This finding suggests that structural separation between commercial and logistical collaboration roles may be a precondition, rather than an outcome, of collaborative effectiveness. Understood in this way, autonomy is best characterised as a mechanism in its own right rather than as a property of the cross-functional and cross-organisational teams with which it is easily conflated. It belongs to the same class as trust and top management support, namely conditions that enable collaboration and that partners can deliberately establish: in C1 the commercial department was excluded from the monthly logistics meetings, and in C6 the supplier's customer service was bypassed. That it is not simply a property of teams is suggested by the way it was obtained in the cases: in C1 and C6 it was secured by removing commercial functions from operational coordination rather than by creating a team structure, whereas in C15 the operational actors were constrained by pre-existing commercial agreements that no team structure could have overcome. Teams are consequential only where their participants hold the decision rights that make joint commitments binding, which is why the framework positions autonomy alongside, rather than within, the execution-phase team mechanisms. Future research could examine whether collaborative function autonomy mediates the relationship between organisational design and collaboration performance.

6.3 The dual role of time and collaborative timing

The most theoretically significant contribution is the articulation of the dual role of time and the concept of collaborative timing. Existing research acknowledges time as a resource, the time required to schedule meetings, align planning cycles and execute tasks (Fawcett *et al.*, 2015;

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Richey *et al.*, 2012). This study confirms this operational dimension but identifies a second, relational dimension: elapsed time as an enabler of trust, mutual understanding and adaptive capacity. Time as an operational resource can be managed and compressed through coordination mechanisms. Time as a relational enabler cannot be accelerated: trust builds through repeated positive interactions, and shared routines develop only through sustained engagement. The findings further suggest that elapsed time alone is not a sufficient indicator of readiness for more advanced collaborative arrangements. Two initiatives may have existed for the same period yet differ substantially in their relational and operational maturity. Collaborative timing therefore refers not to chronological timing alone, but to the alignment of mechanism deployment with the developmental state of the partnership. This helps explain why identical mechanisms may produce different outcomes across otherwise comparable initiatives. This distinction resonates with research on inter-firm relational dynamics (Salam, 2017; Golgeci and Kuivalainen, 2019) and temporal dimensions of organisational learning (Eisenhardt and Graebner, 2007), but has not been explicitly theorised in the SCC context. Whereas stage models identify which enablers are operative at each stage (Fawcett *et al.*, 2008), collaborative timing addresses a distinct question: why a mechanism that is available throughout succeeds or fails according to when it is enacted. It is therefore not a property of a stage, nor merely a state of relational readiness, but a principle of alignment between mechanism deployment and the developmental state of the partnership. Sequencing does not capture it either: two initiatives may introduce mechanisms in the same order and still diverge in outcome, because they reach comparable states of maturity at different rates or fail to reach them at all. Relational readiness is likewise insufficient on its own, since relational and operational maturity may diverge: in C14 the partners were relationally prepared well before they were technically integrated, whereas in C10 an established EDI infrastructure afforded an operational maturity that the relationship did not match, and the VMI scheme built upon it did not take hold. The condition at issue is, moreover, endogenous and moving, unlike the comparatively stable and exogenous conditions with which contingency accounts align practices, such as relationship type, environmental uncertainty or firm characteristics (Huang *et al.*, 2020): it is generated by the collaboration's own history and is altered by the very mechanisms whose deployment it governs.

Collaborative timing thus synthesises both dimensions of time. A mechanism introduced too early, before the relational foundation is in place, may fail not because it is poorly designed, but because the partnership lacks the trust and shared understanding to enact it effectively. This pattern is visible across the cases: in C8 and C9, partners pursued operational cooperation without first establishing a shared understanding of mutual gains, even where an objective had been formally stated, and the initiatives broke down once difficulties arose; in C1, by contrast, the same categories of mechanism took hold only after the inception-phase foundations had been deliberately put in place, underpinning the subsequent performance gains. Across these cases, differences in the timing of mechanism introduction co-vary with differences in outcome. We do not claim, however, that timing alone accounts for the difference between success and failure. The initiatives also differ in trust, goal congruence, the inclusion of relevant stakeholders and the distribution of benefits, and these conditions are interwoven with timing rather than separable from it: a mechanism introduced before a relational baseline exists is, by construction, introduced under conditions of low trust. What the comparison supports is that the effectiveness of a mechanism is conditional on the relational and operational state of the partnership at the moment of its introduction, and that this state is itself a product of the initiative's history. Risk and revenue sharing, for example, requires mutual commitment that typically emerges only after the inception and early development phases have established a collaborative baseline. Collaborative timing thus functions as a meta-principle governing the sequencing of other mechanisms. This conceptualisation contributes to calls for more process-oriented accounts of SCC development (Marty and Ruel, 2024) and adds theoretical precision to the temporal dimension of collaborative relationships.

7. Conclusion

This study has explored how SCC mechanisms are implemented and evolve over time in the FMCG sector, combining empirical evidence from 15 cases of collaboration initiatives with insights from the literature. The paper advances a temporal, process-oriented understanding of SCC, moving beyond static representations of collaboration as a fixed set of practices. From a theoretical perspective, this study contributes to the theory of SCC in three main ways. Firstly, it provides empirical support for a wide range of collaboration mechanisms, clarifying how established mechanisms acquire different roles and relevance as initiatives unfold. Secondly, it proposes a dynamic, time-based framework that conceptualises collaboration as an adaptive process structured around distinct phases, distinguishing between phase-specific and continuous mechanisms. Thirdly, it introduces "collaborative timing" as a theoretically grounded concept capturing when mechanisms should be introduced and sustained within a collaborative relationship. The contribution of collaborative timing is not merely to recognise that collaboration evolves over time, but to explain why identical mechanisms may succeed or fail depending on the relational and operational conditions prevailing at the moment of their introduction. This concept constitutes a novel theoretical contribution to the SCC literature and is complemented by collaborative function autonomy, which identifies the organisational condition shaping how effectively mechanisms can be enacted at the operational level.

For practitioners, the proposed time-based framework offers a clear roadmap for designing and managing collaborative initiatives, supporting managers in identifying which mechanisms are most critical at each stage of collaboration and how resource allocation should be prioritised. Adopting a temporal perspective may also help managers develop more realistic expectations regarding the pace of collaboration, the investments required at different stages and the ongoing effort needed to maintain collaborative arrangements in dynamic environments. This phased approach can reduce resistance, improve adoption and increase the likelihood of long-term success. Finally, the framework can serve as a diagnostic tool.

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By mapping existing practices against the framework, organisations can identify gaps, anticipate challenges and plan targeted interventions to strengthen their collaborative capabilities.

Beyond managerial practice, the findings have broader societal implications. Effective SCC in the FMCG sector directly affects service levels, food waste and supply chain resilience. This is consistent with evidence that specific collaborative activities, such as information sharing and collaborative communication, strengthen resilience by improving visibility, velocity and flexibility in food supply chains (Scholten and Schilder, 2015). The cases show that well-designed collaborative initiatives reduce delivery failures, optimise inventory levels and improve responsiveness to demand volatility, with downstream consequences for consumers and communities. The evolution phase of the framework, emphasising continuous improvement, standardisation and asset sharing, creates conditions for more sustainable collaborative arrangements. Shared logistics assets, consolidated deliveries and coordinated inventory management reduce redundant transport movements and excess stock. These connections between collaborative mechanisms and sustainability outcomes represent a promising direction for future research, given growing regulatory pressure on supply chains to demonstrate environmental and social responsibility (Cloutier *et al.*, 2020).

Other promising directions for future research emerge from the limitations of this study. Firstly, the empirical analysis is based on the Italian FMCG sector. While this provides rich contextual insights, the findings may not be fully generalisable to other industries or geographies. Future research could test the framework in different sectors and national contexts. Secondly, the temporal evidence on which the framework rests is retrospective, and the classification of mechanisms by duration remains interpretative: the chronologies of the initiatives were reconstructed in interviews conducted at a single point in time rather than observed as they unfolded. Retrospective accounts are subject to recall limitations and to hindsight bias. This risk is not evenly distributed across the sample: in the failed initiatives in particular, the tendency to identify a single decisive missing condition in retrospect may impose more coherence on the account than the events themselves warranted. Several features of the design mitigate this concern without removing it, namely the use of more than one informant in several cases, corroboration against company documentation where it was available, comparison of the accounts given by both sides of the relationship where both were interviewed and the member-checking workshops. Thirdly, the study identifies temporal patterns but is not designed to isolate timing as an independent cause of collaborative outcomes. Future studies could complement this with longitudinal or quantitative designs examining the relationship between timing and more granular performance outcomes, including operational metrics such as service levels and inventory costs, as well as relational outcomes such as trust development and long-term commitment. Finally, the present study examines collaborative initiatives within the logistics domain, which represents only one of the fields in which supply chain partners collaborate (Lambert and Cooper, 2000). A promising avenue for future research is to test whether the time-based logic, and the concept of collaborative timing in particular, extends to other collaborative domains, such as joint product development, procurement and payment management or collaborative demand planning, where the relational and operational maturity of the partnership may unfold along different temporal trajectories. These considerations position the present study as an exploratory contribution to a process-oriented understanding of SCC. Building on the time-based framework proposed here, future work could extend the empirical base to a larger and more diverse set of cases, enabling a more formal specification and testing of the framework. A larger data set would also allow researchers to move from the qualitative patterns identified here towards inferential analysis of the relationships among mechanisms, for instance, examining how the presence or timing of one mechanism is associated with the activation of others. Two directions appear especially fruitful: a finer-grained investigation of how a single mechanism changes in role and intensity across the phases of a collaborative initiative, and a systematic analysis of the interdependencies and co-occurrence patterns between mechanisms. Pursuing these directions would consolidate and formalise the framework, building on the empirical foundations established in this study.

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Appendix. Questionnaire

Questionnaire – Collaborative initiatives and main mechanisms in the FMCG sector

Note: This questionnaire was distributed in advance as a preparatory tool and starting point for the subsequent interview. It includes both open-ended questions and a closed-ended section. The definitions of the mechanisms provided to respondents are those in Tables 1a and 1b, not repeated here to avoid duplication.

Thanking you for your cooperation, we would like to remind you that the information gathered in the course of this interview will be kept absolutely confidential.

Collaboration refers to logistics/supply chain initiatives, the implementation of which requires the involvement (and a change in the way of working) of at least two supply chain actors.

Q1. With reference to the last five years, please indicate the main examples of collaborative projects, characterising them according to the following dimensions:

- Actors involved
- Project scope (e.g.: demand planning, warehouse, transport, returns, re-ordering)
- Objective of collaboration (e.g., cost, service, sustainability…)
  Duration of pilot phase
- Status of the project (e.g., completed, still in pilot, extension to other products/suppliers)
- Direct involvement of logistics operators
- Project proposer (e.g., manufacturer, retailer)
- Final results

Q2. With reference to successful/failed collaboration initiatives during the last five years, what were the main mechanisms (in terms of practices and actions implemented/ not implemented) that enabled/hindered the achievement of the objectives set?

Category	Mechanism	Implemented	Not implemented
Planning & Control Methods	Joint planning		
	Joint decision-making		
	Joint performance management		
	Joint problem-solving		
	Goal congruence		
	SMART goals		
Workflow/Activity Structure	Flow synchronisation		
	Process integration		
	Standardisation of collaborative procedures		
Organisational Structure	Cross-organisational teams		
	Cross-functional teams		
	Co-location of personnel		
	Contractual agreements on roles and conditions		
Communication & Information Flow	Information sharing		
	Standardisation of Information Technology		
	Shared technology and business platform		
	Database		
	Data mining techniques		
Product Flow	Asset and resource sharing		
Management Methods	Agile management		
	Continuous improvement		
	PDCA cycle implementation		
Power & Leadership Structure	Top management support		
	Leading by example		
	Transactional leadership		
Risk & Reward Structure	Incentive alignment		
	Risk and revenue sharing		
	Relationship-specific investments		
	Performance improvement awards		
Culture & Attitude	Vision sharing		
	Trust		
	Inter-organisational team-building activities		
	Collaborative communication		
Other			

Q3. Please feel free to add any comments or highlight any additional factors, actions, or observations that played a significant role in the collaboration process

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