Information Sharing in Short Food Supply Chains

A multi-case study

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Abstract

Purpose – This master's thesis examines the mechanisms that can strengthen trust, capabilities, and the willingness to share information, aiming to enhance information sharing in Short Food Supply Chains (SFSCs), to enhance supply chain collaboration and overcome logistical inefficiencies.

Design/methodology/approach – Utilising a qualitative multi-case study approach, this research engages with various stakeholders in SFSCs, including local suppliers, SFSC initiatives, and a government agency, to explore the nuances of information sharing practices. The methodology incorporates semi-structured interviews and thematic analysis, supported by a two-step triangulation process with the use of ATLAS.ti software for validation.

Findings – Trust, capabilities, and willingness to share information among local suppliers in SFSCs can be enhanced through strategies that emphasise mutual benefits, reciprocity, and transparency. Training and valuable information boost supplier capabilities and confidence, fostering trust and willingness. Such empowerment addresses fears of being replaceable and bolsters the competitive advantage of local suppliers relative to traditional food suppliers. Demonstrating transparency, such as sharing forecasts, builds mutual trust and cooperation. Highlighting the benefits of shared data empowers suppliers to make informed decisions, while aligning SFSC goals with supplier interests creates a collaborative environment. Addressing information asymmetry through dialogue further clarifies expectations, enabling effective information sharing. Together, these strategies create a feedback loop where trust, capabilities, and willingness are mutually reinforced, fostering a sustainable culture of information sharing within SFSCs.

Originality/value – This master's thesis addresses a gap in the literature by focusing on the overlooked dynamics of information sharing in SFSCs and by examining the boundary conditions of the contextual factors that influence information sharing. This thesis makes another original contribution to the academic literature by linking SFSC literature with three established theories: Resource-Based View, Social Exchange Theory, and Actor-Network Theory. This integration forms the primary objective of generalising the findings of this thesis, establishing a novel theoretical framework for analysing SFSC dynamics. Lastly, it extends this innovation by applying these theories within a new context, specifically of SFSCs.

Keywords – Short Food Supply Chain, information sharing, trust, capabilities, willingness to share information, Supply Chain Management, qualitative multi-case study

Preface

This thesis, representing five months of intensive research and effort, is the final requirement for my master's program in Supply Chain Management at Tilburg University, following the pre-master and all associated coursework. My academic journey originated at Avans University of Applied Sciences in Tilburg, where I pursued a degree in Industrial Engineering and Management and developed a passion for the increasingly important dynamics of supply chains. This interest motivated me to further my studies in the field, inspiring me to attain this master's degree.

My sincere gratitude goes to my academic supervisor, Dr. Han Kyul Oh, for his guidance and support throughout this research process. Additionally, my thanks are extended to my supervisors at LCB, Marlou Claes and Peter Kole, for their insightful feedback and direction. I am also grateful to my colleagues at LCB for their input, encouragement, and suggestions.

Lastly, my heartfelt appreciation is extended to my family and friends for their support and encouragement throughout this research journey.

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List of abbreviations

Table 1: List of abbreviations

Abbreviation	Meaning
ANT	Actor-Network Theory
B2B	Business to business
B2C	Business to consumer
CPFR	Collaborative Planning, Forecasting, and Replenishment
DAC	Data Analytical Capabilities
IoT	Internet of Things
LCB	Logistics Community Brabant
NLL	Next Level Logistics
RBV	Resource-Based View
SCM	Supply Chain Management
SET	Social Exchange Theory
SFSC	Short Food Supply Chain

List of tables

List of figures

Table of contents

Chapter 1: Introduction

This chapter sets the foundation for understanding Short Food Supply Chains (SFSCs), tracing their evolution from prominence to decline, and their resurgence in the face of modern agricultural demands. It highlights the growing significance of sustainable food systems, and the contemporary challenges SFSCs encounter. The discussion frames the research questions and objectives, preparing the ground for a deeper exploration of the critical themes that shape this master's thesis.

1.1 Research background

SFSCs initially empowered producers within the food chain, offering them a strong position and equitable share of value. However, their influence diminished as Europe embraced long-distance transport, urbanisation, and technological innovations. The introduction of the American supermarket model in the 1960s significantly reduced producers' roles and incomes in the agri-food sector. By the 1990s, small farms had largely disappeared, and retail giants, sourcing from wholesalers and large suppliers, dominated local markets. Yet, renewed consumer interest in secure and sustainable products has revitalised SFSCs (Borsotto et al., 2023). In Europe, families allocate more than 10% of their food budget to purchases from SFSCs, which support over 15% of total employment in the food industry. Additionally, at least 30% of locally produced food is consumed locally (EIP-AGRI Focus Group, 2015). In The Netherlands the number of businesses engaging in direct sales grew significantly from 2,641 in 2016 to 7,225 in 2020; a 274% increase (Kraaijvanger et al., 2021).

This growth reflects the urgent need to address the social, economic, and environmental challenges inherent in the current food system. Socially, food systems must ensure public health, food security, and fair income distribution while fostering local food production, preserving food culture, and building trust among stakeholders. Economically, SFSCs must provide producers with greater value share while keeping high-quality food accessible to consumers. Environmentally, agriculture and food production face pressures from biodiversity loss, resource overuse, pollution, climate change, and food waste, much of which stems from centralised supply chains and geographic concentration of production. These centralised systems have widened the physical and social gaps between value chain participants, increasing inefficiencies and unsustainable practices (Vittersø et al., 2019).

SFSC initiatives that foster supply chain collaboration through transport platforms offer effective solutions to key logistical and organisational challenges stated by Paciarotti and

Torregiani (2020). By bundling deliveries, they reduce transport costs, improve economies of scale, and streamline operations. These SFSC initiatives, in the form of platforms, enhance product availability by coordinating local suppliers and simplifying access for consumers and institutions (Paciarotti and Torregiani, 2020).

This master's thesis, conducted at LCB within the 'Next Level Logistics' project, explores information sharing in SFSCs, a cluster of the project. The project aims to reduce vehicle movements and emissions while enhancing living and working environments through adaptive collaboration in transport capacity using advanced technologies like AI, blockchain, and data-driven planning (NLL, 2024). The thesis investigates the current state of information sharing among SFSC stakeholders, barriers to trust, capabilities, and willingness to share information, and how information sharing can be fostered in SFSCs, supporting the project's overarching goal of fostering supply chain collaboration in this context.

1.2 Problem indication

Traditional FSCs, while efficient in delivering large volumes of food over long distances, face well-documented inefficiencies. These include post-harvest losses, elevated consumer prices due to multiple intermediaries, and resource overutilisation (Vittersø et al., 2019). Despite the increasing popularity of SFSCs, several obstacles continue to hinder their expansion, such as poor collaboration among producers, a generational divide, infrastructural shortcomings, inadequate information sharing (Borsotto et al., 2023), and the disinterest among local suppliers to participate (Enthoven et al., 2023).

Information sharing in Short Food Supply Chains

The agri-food sector falls considerably behind other industries in addressing challenges arising from a combination of technological and social factors (Durrant et al., 2021). Collaborative Planning, Forecasting, and Replenishment (CPFR) frameworks provide a structured approach to improving supply chain coordination through shared data and joint decision-making (Du et al., 2009). However, challenges in information sharing practices persist (Borsotto et al., 2023), overcoming these barriers is neglected by the literature of SFSCs. The absence of real-time data exchange hampers SFSC performance (Burgess & Sunmola, 2021). Without accurate demand forecasts, local suppliers tend to overproduce, leading to waste, or underproduce, resulting in stockouts (Vittersø et al., 2019). Moreover, trust deficits between stakeholders further inhibit information sharing, as producers fear misuse of their data or exploitation by other supply chain participants (Huo & Jiang, 2007).

SFSC initiatives have sought to address these challenges by combining logistics and centralising orders to reduce transportation inefficiencies. By directly connecting producers with consumers and businesses, platforms aim to streamline operations while maintaining the local character of SFSCs (Lankauskienė et al., 2022). However, the scalability of such initiatives depends on improving information sharing and fostering greater collaboration among stakeholders (Burgess & Sunmola, 2021). Despite the increase in businesses engaging in SFSCs, initiatives remain small in scale or fail altogether due to logistical and operational hurdles. The seasonal and perishable nature of agricultural products also adds complexity to inventory management and distribution planning (Vittersø et al., 2019).

1.3 Theoretical contributions

Despite its significance, the literature on SFSCs often neglects the dynamics of information sharing. Challenges related to the upscaling of SFSCs are seldom linked to issues of information sharing, and even when such links are acknowledged (Borsotto et al., 2023), there is a lack of depth in exploring the boundary conditions that influence these challenges. Moreover, while studies such as those by Burgess & Sunmola (2021) explore the potential benefits of information sharing within the context of SFSCs, they tend to overlook the associated challenges. Additionally, the broader discourse on information sharing inadequately addresses the boundary conditions of context-specific phenomena. This oversight is well-articulated by Özer et al. (2011, p. 1128), who state, "Thus far, the information sharing and supply chain coordination literature has assumed that supply chain members either absolutely trust each other and cooperate or do not trust each other at all. Contrary to this all-or-nothing view, we determine that there exists a continuum between these two extremes when people share information." Building on Makadok et al.'s (2018) framework of six levers of theoretical contribution, boundary conditions, levels of analysis, causal mechanisms, constructs, phenomena, and modes of theorising, this master's thesis identifies a critical gap in the unexplored boundary conditions of information sharing in SFSCs. Understanding these boundary conditions is an important contribution in itself, with a potentially larger impact on SFSC literature.

1.4 Managerial implications

By focusing on information sharing, this research aims to support the development of more efficient and collaborative SFSCs, improving their long-term viability and scalability. This master’s thesis is particularly relevant for SFSC participants, including local suppliers and SFSC initiatives, and is also be helpful for policymakers in developing policies to foster collaboration in SFSCs. For the latter, it outlines collaborative values that can help each

initiative develop strategies tailored to their specific circumstances and current state of these values. The primary objective of generalising the findings of this thesis is to bridge the practice of SFSCs with theoretical frameworks that have not yet been applied to this field of literature. Researching information sharing with the aim of contributing it with an unifying theory is valuable, as it addresses both social and technical challenges in supply chain contexts and improves understanding through interdisciplinary approaches, a focus found in only a handful of studies (Zaheer & Trkman, 2017). This approach offers a fresh perspective on SFSCs and their collaborative dynamics. Linking theory to practice provides actionable generalisable managerial recommendations that can be applied to diverse SFSCs. Specifically, it aims to guide stakeholders in implementing strategies that enhance trust, develop capabilities, and foster a greater willingness to share information. These actions will strengthen collaboration among stakeholders and contribute to the long-term success of SFSCs.

The combination of the need for theoretical contributions and managerial implications underscores the necessity of a holistic approach that integrates structured logistical frameworks, trust mechanisms, and capability-building to address the boundary conditions of information sharing and enhance the overall effectiveness of SFSCs, as illustrated in Figure 1.

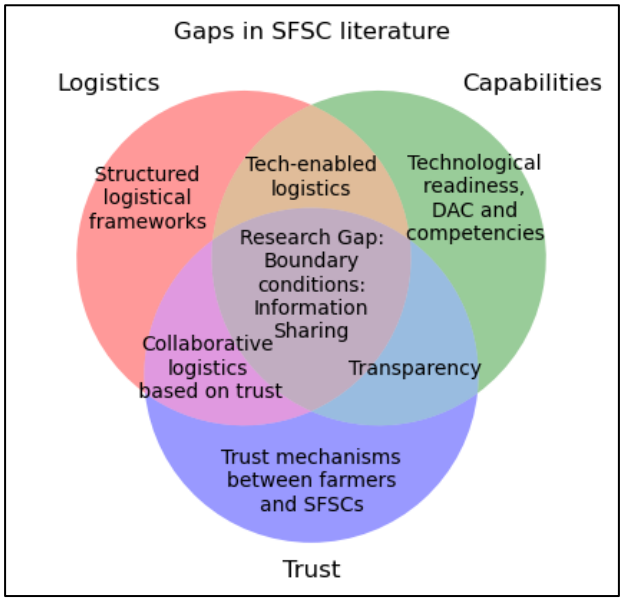

Figure 1: Gaps in SFSC literature. Source: Author.

By addressing the identified research gap and contributing to both theoretical understanding and practical application, this study aims to answer the following problem statement, which is visually represented in the conceptual model shown in Figure 2:

"How can trust, capabilities, and the willingness to share information be enhanced to foster information sharing in SFSCs?"

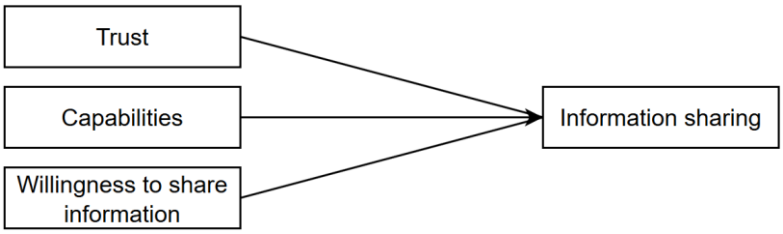

Figure 2: Conceptual model. Source: Author.

The problem statement is broken down into theoretical and empirical research questions, which together aim to provide a comprehensive answer to the problem statement.

Theoretical research questions:

1. *What are the challenges of SFSCs, and how can information sharing be enhanced to address these challenges?*
2. *How do trust, capabilities, and the willingness to share information influence information sharing?*
3. *How can the concepts of trust, capabilities, and the willingness to share information be characterised and conceptualised within SFSCs?*

Empirical research questions

4. *What factors drive or hinder participation and collaboration among SFSC stakeholders?*
5. *Under what conditions does information sharing improve due to enhanced trust, capabilities, and the willingness to share information in SFSCs?*

Chapter 2: Literature review

This chapter provides a comprehensive overview of the existing literature relevant to the study of SFSCs. It begins by contrasting traditional FSCs with SFSCs, highlighting the operational challenges and inefficiencies of SFSCs while emphasising the sustainability-focused attributes. The discussion outlines key shifts shaping FSCs, and also delves into the unique configurations, logistics, and collaboration dynamics of SFSCs, underpinned by information sharing, trust, capabilities, and the willingness to share information.

2.1 Traditional Food Supply Chains

Traditional Food Supply Chains (FSCs) are centralised systems designed for transporting large volumes of food over long distances, which is not sustainable (Lankauskienė et al., 2022). While efficient in scale, they often face inefficiencies and lack transparency due to reliance on intermediaries. Van Beusekom – Thoolen et al. (2023) identify challenges such as inadequate information sharing, poor external coordination, reactive logistics, and misaligned stakeholder goals, which hinder operational effectiveness and disrupt food safety efforts. Lankauskienė et al. (2022) describe three paradigm shifts relevant to the transition toward sustainable models:

- Demand-Driven Systems: Shifting from production-focused to consumer-centric approaches improves responsiveness to consumer needs, enhancing sustainability.
- Network Thinking: Moving from siloed, linear operations to collaborative networks strengthens resilience and value co-creation.
- Service-Dominant Logic: Emphasising value provision through goods and services fosters stronger producer-consumer relationships.

These insights underscore the limitations of traditional FSCs and the necessity for localised, transparent, and sustainable models like SFSCs.

2.2 Short Food Supply Chains

Short Food Supply Chains (SFSCs) are increasingly viewed as a sustainable alternative to traditional FSCs. Although no universal definition exists, SFSCs are generally characterised by their geographical and social proximity between producers and consumers. The European Union provides a comprehensive definition of SFSCs, describing them as:

"A supply chain involving a limited number of economic operators committed to cooperation, local economic development, and close geographical and social relations between producers, processors, and consumers" (European Union, 2013)

This study adopts this broad EU definition to account for both the geographical and social dimensions that define SFSCs. Trust, transparency, and cooperation are central to their success, with a focus on fostering close relationships throughout the supply chain (Paciarotti & Torregiani, 2020).

Comparison of FSCs and SFSCs

SFSCs differ significantly from traditional FSCs in terms of objectives, configurations, and the nature of relationships among actors, as shown in Table 2. While FSCs emphasise strategic cooperation to enhance value and efficiency across the entire chain, SFSCs prioritise cooperation, integration, and greater autonomy among actors, focusing on generating added value for local farmers and consumers (Thomé et al., 2020).

Table 2: Comparison of SFSCs and FSCs by focal components. Source: Thomé et al. (2020).

Components	SFSCs	FSCs
Objective	Co-operation, integration and greater autonomy of actors; *generating value for the farmers and the consumers*, as well as alternatives and opportunities for rural and local development	Strategic co-operation for the *creation of value and efficiency* of the entire chain through the integration processes that are essential to the business of the chain actors
Configuration	*Interactional network among actors* mainly focused on bringing together producers and consumers	Gravitation actors around the focal firm, forming a *network of various businesses and relations*
Relations among the chain actors	*Proximity, formal and informal*, among the actors, mainly between farmers and consumers; relations based on trust building in the origin and quality of food products	*Formality among actors*, moderate relations with trust features and institutional aspect among actors
	Need for greater integration among farmers (local) to strengthen the region	Need for greater integration between actors to strengthen the chain
Spatial relations	*Relocation*	*Delocation*
	Consumer knowledge about the location, production, product and spatial conditions of production; local and regionally-based	Absence of spatial reference of the product; no incentive to understand the food origin; products without space/land/territory/place
Interest	Community, regionality, territorial development, *enable the farmer to capture greater value and generate added value to the consumer*	Diffuse along the chain; in general, *generate added value for the various chain actors and the consumer*
Needs of the productive system and consumption	Provide value to the chain actors; convergence of interests	Provide value to the chain actors; convergence of interests

The SFSCs foster trust-based relationships through close geographical and social proximity, enabling direct communication and transparency between producers and consumers. In contrast, FSCs rely on formal relationships mediated by intermediaries, with moderate trust and institutional governance (Paciarotti & Torregiani, 2020; Vittersø et al., 2019). Spatial dynamics also differ: SFSCs emphasise localisation, connecting consumers with food origins and fostering community engagement, while FSCs often separate production and consumption, reducing transparency and consumer awareness (Schmitt et al., 2018).

2.3 SFSC initiatives

SFSC initiatives, by bundling resources and integrating transport logistics, facilitate direct B2B or B2C delivery of local products through a platform, described by Lankauskienė et al. (2022) as a two-sided network. These platforms, supported by IT connectivity (In et al., 2018), address logistical challenges by bundling resources and using platform-based ecosystems to optimise

delivery routes and reduce costs, while improving product availability and variety by coordinating multiple local suppliers (Paciarotti & Torregiani, 2020). Despite these advancements, further professionalisation of logistical practices remains necessary to fully realise the potential of SFSCs in scaling and sustaining localised food systems (Paciarotti & Torregiani, 2020; Vittersø et al., 2019). In Figure 3, a simplified network design of how an SFSC initiative can operate within an SFSC is depicted.

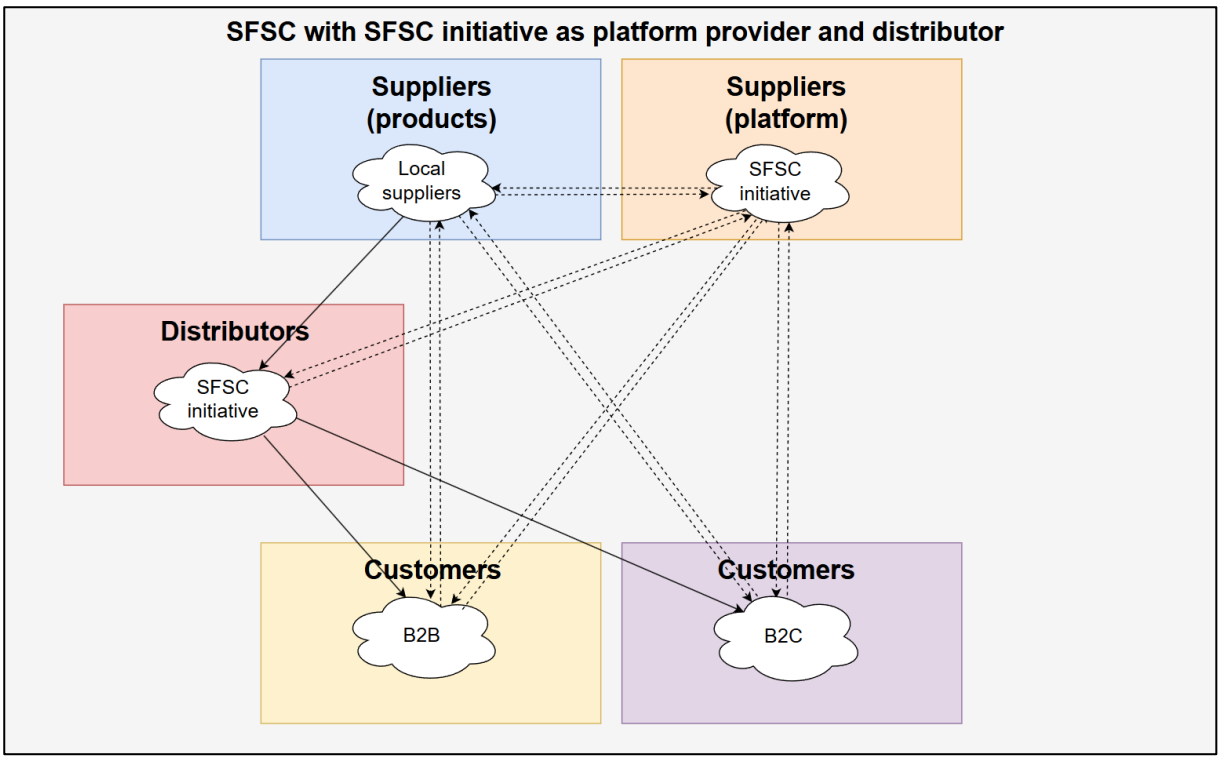

Figure 3: Network design SFSC. Source: Author.

Logistics is pivotal in reducing waste and maximising efficiency, especially for local food producers (Paciarotti & Torregiani, 2020). Strategic partnerships and collaborative forecasting are essential in volatile supply chains like the food industry, enhancing satisfaction and performance through group forecasting and internal integration, as highlighted by Eksoz et al. (2019) and Hamprecht et al. (2005). Logistics collaborations also ensure information sharing, logistics coordination, and benefit sharing (Audy et al., 2010).

Collaboration is multi-layered, involving both vertical (e.g., farmer-to-consumer) and horizontal (e.g., farmer-to-farmer) coordination (Yuan et al., 2023). Information sharing fosters transparency, trust, and accountability, yet barriers like low digital literacy among local producers hinder its effectiveness (Paciarotti & Torregiani, 2020). Mature industries, like the

traditional FSCs, increasingly use digital tools like IoT and blockchain to create transparent and reliable systems, enabling better collaboration across stakeholders (Yuan et al., 2023). In low-tech contexts, logistical inefficiencies persist, necessitating collaborative solutions (Paciarotti & Torregiani, 2020). CPFR (Collaborative, Planning, Forecasting, and Replenishment) is a supply chain initiative that enhances coordination through improved demand forecasting, production scheduling, inventory management, and order fulfilment (Hill et al., 2017). The primary objective of CPFR is to share selected internal information via a shared web server to provide reliable, long-term demand forecasts within the supply chain. To achieve this, front-end partnership agreements, joint business plans, and shared forecasts and sales data must be shared within the supply chain (Fliedner, 2003). CPFR frameworks enhance supply chain coordination through shared data and joint decision-making (Du et al., 2009), also reducing inventory levels, increasing sales, and improving performance (Hill et al., 2017), and the real-time data exchange would facilitate scaling-up in SFSCs (Burgess & Sunmola, 2021). In more mature FSCs, digital solutions like IoT and blockchain can overcome the barriers of scaling-up, aligning production and demand while fostering trust (Yuan et al., 2023). However, the success of these systems depends on stakeholders' willingness to share information, as even advanced technologies cannot compensate for a lack of collaboration. As noted by Kwon and Suh (2004, p. 6), “Information sharing has been singled out as the most important factor for successful supply chain management”.

2.4 Information sharing

“Information sharing means distributing useful information for systems, people or organizational units” (Lotfi et al., 2013, p. 300). This underscores the importance of identifying the specific information needs of stakeholders, particularly for SFSC initiatives, as their aim is to foster collaboration. The insights obtained from the response on the question “What is useful?”, combined with findings from the literature (Fliedner, 2003; Liu et al., 2019), have led to a compilation of information considered relevant within SFSCs. The categories included in this compilation are 'Inventory Information', 'Product Information', 'Capacity Information', 'Sustainability Information', and 'Strategic Information'. This compilation is presented in Appendix 1.

Information sharing, also referred to as 'Knowledge Sharing' or 'Information Integration' (Lotfi et al., 2013), is integral to supply chain collaboration, relying on trust, information quality, and advanced technologies to improve performance (Nimmy et al., 2019). These factors are particularly critical for CPFR in SFSCs, which depends on joint planning and real-time data

exchange (Du et al., 2009). By aligning goals and synchronising operations, CPFR enhances efficiency and responsiveness. However, challenges such as high initial costs, stakeholder mistrust, and technological incompatibilities complicate implementation (Nimmy et al., 2019).

Trust has a stronger impact on information sharing in supply chains than power, though both are significant. Trust encourages supply chain members to share information willingly, providing a competitive advantage, while power acts as enforcement, compelling weaker members to share. Buyers are more likely to support suppliers they deem trustworthy and capable of long-term reliability (Cai et al., 2012). Similarly, Cheng et al. (2008) emphasised that trust is central to interorganisational information sharing. Factors that positively enhance trust (e.g., participation and communication) or negatively affect it (e.g., opportunistic behaviour) directly influence the extent of information sharing (Cheng et al., 2008). Pooe et al. (2015, p. 1) highlight on the other hand that for small to medium enterprises: "information sharing exerted a moderate positive and significant influence on supplier trust". The relationship between information sharing, trust, and subsequent information sharing in an supply chain constitutes a plausible positive feedback loop supported by these studies. This relationship follows a causal logic, as illustrated in Figure 4, and also supported by Badraoui et al. (2023). Badraoui et al. (2019, p. 88) further confirm this statement, within the context of FSCs, "information sharing improves the trust level between the partners by contributing to the reduction of behavioural uncertainty". Furthermore, they highlight that "the partners developed more trust and commitment toward each other, leading to more intensive operational activities in terms of information sharing and joint relationship efforts' (Badraoui et al., 2019, p. 99).

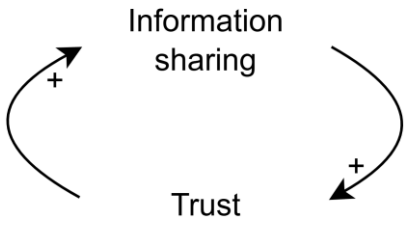

Figure 4: Positive feedback loop information sharing and trust. Source: Author, derived from Cheng et al. (2008), Cai et al. (2012), Pooe et al. (2015), Badraoui et al. (2019), Badraoui et al. (2023).

Effective information sharing further fosters collaboration and resilience in supply chains, offering benefits like cost efficiency and improved customer experiences (Colicchia et al., 2018). Collaborative practices are most effective with high-quality information, but even lower-

quality data can positively impact performance (Wiengarten et al., 2010). Despite its importance, the literature on SFSCs overlooks the dynamics of information sharing. For instance, Charatsari et al. (2019) explore the competencies and participation of farmers within SFSCs but do not delve into information sharing. Similarly, studies like that of Borsotto et al. (2023) acknowledge that scaling up SFSCs faces obstacles due to a lack of information and weak cooperation, yet they do not dedicate further study to these issues. To the best of the researcher's knowledge, Burgess and Sunmola (2021) are the only researchers who focus on information sharing in SFSCs. They assert that real-time data exchange is a functional requirement and emphasise the necessity of accessible platforms for effective two-way communication and information sharing among SFSC stakeholders. These platforms must ensure that information is consistent, timely, and openly accessible. Integration and connectivity are crucial, with IT platforms required to prioritise not just effectiveness but also seamless connectivity. Enhancing connectivity in SFSCs depends on key factors such as technology, trust, and collaboration. Unfortunately, Burgess and Sunmola (2021) on the other hand overlook the challenges within information exchange in SFSCs. Beyond the literature on SFSCs, the broader literature on information sharing also falls short in describing the boundary conditions of the contextual factors affecting information sharing in more mature supply chains like the traditional FSC. For example, Yuan et al. (2023) emphasise technology's role in enhancing transparency, trust, and collaboration, while Du et al. (2009) explore the logistical benefits of CPFR, both primarily within the context of more developed FSCs. Consequently, these findings may not directly apply to SFSCs which often exhibit varying levels of technological advancement, as highlighted with the technological limitations by Lankauskienė et al. (2022).

2.5 Willingness to share information

"Willingness to share information with supply chain partners can be defined as a company's openness to sharing relevant information honestly and frequently and to making strategic and tactical data available to supply chain partners" (Zaheer & Trkman, 2017, p. 419). In practice, individuals, not companies, demonstrate this willingness, highlighting the need to incorporate insights from general information-sharing literature. Particularly the definition of the individual willingness as the degree to which an individual is prepared to grant others access to their personal intellectual capital (Zaheer & Trkman, 2017). This human dimension is crucial for effective information sharing in supply chain collaboration. Fawcett et al. (2007, p. 360) emphasise that "huge investments in technology can be negated by an unwillingness to share needed information". Despite the critical role of willingness, companies often focus

disproportionately on technological connectivity, neglecting the human and cultural dimensions essential for effective information sharing (Fawcett et al., 2007; Zaheer & Trkman, 2017). Several human and cultural dimensions influence the willingness to share information, including trust, commitment, and reciprocity. Trust emerges as the most significant antecedent, creating an environment where stakeholders feel confident that shared information will not be misused (Zaheer & Trkman, 2017). Commitment to shared goals and reciprocity, the expectation that information sharing will be mutually beneficial, further enhance this willingness, and foster information sharing (Zaheer & Trkman, 2017).

Organisational culture also plays a critical role. A supportive culture that prioritises openness and collaboration can significantly enhance profitability and performance by encouraging a willingness to share information (Fawcett et al., 2007). Management support is equally important; visible commitment from leadership and clear policies addressing potential concerns can alleviate fears of data misuse, thus fostering a more collaborative environment (Zaheer & Trkman, 2017). In evaluating the willingness to share information during interviews, emphasis is placed on assessing the actors' capabilities to engage in frequent and regular communication, their openness to sharing information within the SFSC, and whether local suppliers perceive that they are treated fairly under equitable policies. This approach facilitates an understanding of the reciprocity aspects, as highlighted by Zaheer and Trkman (2017).

2.6 Trust

Trust is a multifaceted concept that underpins effective collaboration in SFSCs. Akkermans et al. (2003, p. 447) define trust as “the belief that the other party will act in the firm’s best interest in circumstances where that other party could take advantage or act opportunistically to gain at the firm’s expense.” Similarly, Zaheer and Trkman (2017, p. 421) describe trust as “the willingness of A (the truster) to be vulnerable to the actions of B and expecting that B will perform a particular important action for A, regardless of A’s ability to monitor or control B.” For this research, trust was assessed using Evans and Revelle’s (2008) definition of trust as a psychological state based on positive expectations of another’s intentions or behaviour. Interviews explored trust through open-ended questions, examining whether SFSC initiatives keep promises and consider the welfare of local suppliers (Zaheer & Trkman, 2017).

Socially sustainable food chains emphasise trust-building to support local food production, foster social capital, and create shared value (Vittersø et al., 2019). Communication frequency and quality positively influence trust development, with greater communication frequency

associated with higher perceived communication quality (Mohr & Sohi, 1995). Yuan et al. (2023, p. 15) states a barrier: "hands-on information exchange styles" among farmers can lead to unclear communication and require significant interpretation, undermining trust. This is undesirable, as trust leads to more and superior information sharing and effective information flows in a supply chain environment (Badraoui, 2023; Stuart et al., 2012). However, challenges like individualism of local suppliers, reluctance to cooperate, and a lack of trust persist as barriers to collaboration in SFSCs (Volpentesta & Ammirato, 2012).

Despite its importance, trust between local suppliers and SFSC initiatives is underexplored. While studies often highlight farmer-consumer trust in FSCs, they neglect the dynamics of trust-building between local suppliers and SFSC initiatives. Mechanisms such as regular communication, fair pricing, and shared risk management likely play a critical role but remain insufficiently examined (Paciarotti & Torregiani, 2020). Boundary conditions for trust vary depending on the scale and structure of SFSCs. Larger, formal networks may rely on contracts and technologies to establish trust, while smaller, informal networks depend on personal relationships and social proximity. Platforms can bridge these gaps, but their role in trust-building remains ambiguous (Lankauskienė et al., 2022). As detailed by Özer et al. (2011), trust and information sharing exist on a continuum rather than in a binary state, underscoring the necessity to explore the circumstances under which trust in information is applicable and when it is not.

2.7 Capabilities

Capabilities in order to digitalise and participate in the SFSC are lacking (Charatsari et al., 2019; Michel-Villarreal et al., 2021). In mature industries like the traditional FSC, digitalisation is employed to enhance efficiency and mitigate food waste (Annosi et al., 2021). In the context of SFSCs, Michel-Villarreal et al. (2021) highlight: "A key finding is the importance of low-cost digital technologies (including freeware and social media) that can support flexibility, collaboration, visibility and agility. These findings raise important implications for SFSCs actors exploring opportunities to improve" supply chain resilience capabilities. Michel-Villarreal et al. (2021) emphasise that augmenting capabilities is crucial for increasing agility and fostering collaboration. Furthermore, they suggest that supply chain resilience will be bolstered by promoting information sharing practices, such as sharing inventory levels and production schedules, adopting new business models, and facilitating rapid decision-making (Michel-Villarreal et al., 2021).

Capabilities can be distinguished between zero-level capabilities and higher-level capabilities: “Zero-level capabilities refer to ordinary capabilities – the ability to maintain daily operations in the short term, whereas dynamic capabilities are considered as higher-level capabilities to sustain competitive advantages in the long term” (Song & Liao, 2018, p. 60). In this master’s thesis, the aim is to identify the higher-level capabilities in SFSCs. To study capabilities in SFSCs, a distinction is made between the following three phenomena:

- DAC: "Maintaining and developing routines required for using DA to develop business insights that is aligned with business needs and priorities." (Kakhki et al., 2022, p. 541)
- Management competencies: "A set of motivations, personal, traits, abilities, knowledge and values necessary to improve management performance." (Gamarra et al., 2019, p. 1)
- Marketing competencies: "Help managers understand various customer segments and their requirements and plan to meet the identified needs." (Mageto & Luke, 2020, p. 12)

Data Analytical Capabilities

DAC is a dynamic capability enabling organisations to understand their environment, seize opportunities through data-driven decisions, and adapt to changes. It supports supply chain flexibility, process innovation, and sustainable innovation (Kokkinou et al., 2024). Developing DAC relies on three resource types: (1) tangible resources like time, finances, data, and technology, (2) intangible, organisation-specific resources such as a data-driven culture and organisational learning, and (3) human resources requiring managerial and technical expertise (Kokkinou et al., 2024). Food suppliers often innovate in ways that align with their interests and limited capabilities, typically working independently and opting for simpler, less effective methods (Annosi et al., 2021). Enhanced capabilities can lead to reduced food waste due to improved management facilitated by data utilisation, increasing supply chain performance. Furthermore, a high DAC allows for more effective management of data and insights, accelerating digital transformation and enhancing the efficiency of information sharing (Annosi et al., 2021).

In more mature supply chains, assessing DAC involves evaluating the integration of data sources, the use of visualisation tools to simplify complex information, root cause analysis, and ensuring dashboard accessibility on devices (Yu et al., 2020; Yu et al., 2021). Data analytics encompasses employing data along with statistical and quantitative analyses, utilising explanatory and predictive models, and applying fact-based management to steer decisions and

actions (Davenport and Harris, 2007), including predictive analytics, which supports demand forecasting, production optimisation, and waste reduction (Zhu & Yang, 2021). Bag et al. (2019) and Nisar et al. (2022) state that DAC support firms to leverage data analytics and organisational learning to support sustainable SCM outcomes. However, to the best of the researcher's knowledge, research on the DAC in SFSCs has not been previously addressed. Nonetheless, it is an important factor in digitalising traditional FSC, and therefore valuable to consider when the goal of this master's thesis is to enhance information sharing. For example, Nisar et al. (2022) focus on multinational corporations, highlighting the need to explore how DAC can address the specific needs of smaller, community-focused supply chains.

Management and marketing competencies

Beyond DAC, marketing and management competencies are crucial for SFSC participants, including suppliers and initiatives. Participation in SFSCs requires diverse skills in marketing, entrepreneurship, and management, shaped by local socio-economic and cultural contexts (Charatsari et al., 2019). Competencies in communication, collaboration, and market navigation, such as pricing strategies and consumer behaviour, enhance SFSC sustainability (Lummus et al., 2003). Managerial skills, including joint planning, resource sharing, and market-based information exchange, further strengthen collaboration (Du et al., 2009). Despite their importance, coordinated frameworks for these competencies remain underexplored. Peer-to-peer learning can enhance farmer competencies (Charatsari et al., 2019), but mechanisms to align these with strategic frameworks like CPFR are lacking. Logistical challenges (Paciarotti & Torregiani, 2020) and inefficiencies in two-sided platforms (Lankauskienė et al., 2022) further underline the need for professionalisation and integration of competencies. This thesis incorporates marketing and managerial competencies alongside DAC to address these gaps in SFSC research. Management competencies include managing risks, finances, businesses, and coordination strategies (Charatsari et al., 2019). Marketing competencies, include sales promotion, market analysis, and alternative distribution strategies (Charatsari et al., 2019). Management and marketing competencies significantly influence willingness to participate in SFSCs (Charatsari et al., 2019), making them vital for studying information sharing and collaboration within SFSCs.

2.8 Conclusion

Chapter 2 systematically explored the theoretical research questions that underpin this master's thesis. This segment delineates and responds to the following theoretical research questions:

1. *What are the challenges of SFSCs, and how can information sharing be enhanced to address these challenges?*

SFSCs face logistical inefficiencies, fragmented communication, professionalisation issues, digital literacy and individualism of local suppliers, reluctance to cooperate and a lack of trust persist as challenges to collaboration. Enhancing information sharing through increasing trust, capabilities, and the willingness to share can address these challenges.

2. *How do trust, capabilities, and the willingness to share information influence information sharing?*

Trust is the cornerstone of effective collaboration, fostering transparency and reducing barriers to information sharing. Capabilities, including data analytics, management, and marketing, enable information utilisation, and SFSC sustainability. The willingness to share information, driven by trust, reciprocity, is essential but lacking in SFSCs, which hinders information sharing.

3. *How can the concepts of trust, capabilities, and the willingness to share information be characterised and conceptualised within SFSCs?*

Trust within SFSCs is relational, relying on frequent communication and fairness. Capabilities integrate dynamic capabilities like data analysis with practical competencies in management and marketing, essential for scaling SFSCs sustainably. Willingness is both an individual and organisational attribute shaped by trust, reciprocity, and commitment.

Addressing these interconnected factors is crucial for developing scalable, resilient SFSCs that balance sustainability and efficiency, forming the foundation for the methodological framework outlined in Chapter 3.

Chapter 3: Methodology

This chapter outlines the methodological framework underpinning the research, detailing the research design, data collection methods, and analytical approaches used to explore the dynamics of information sharing within SFSCs. Building on the theoretical insights provided in Chapter 2, it justifies the use of a qualitative abductive case study approach and emphasises the alignment of methods with the research objectives, ensuring reliability and validity.

3.1 Nature of research and research strategy

To capture the complexities of information sharing a qualitative multi-case study will be conducted. “Qualitative SCM case research is particularly useful in the area of theory building, and as a way of presenting and evaluating real world SCM examples” (Childe & Soares, 2022, p. 122). Using an abductive qualitative case study approach, the research enhances methodological rigor and bridges theory with practice (Barratt et al., 2010). By triangulating emerging findings with existing literature on SFSC management, this study will discuss various perspectives on information sharing in SFSCs (Annosi et al., 2021). Conducted as a cross-sectional study, it examines current practices, motivations, relationships, and contextual factors shaping information sharing within SFSCs. The unit of analysis is at the organisational level, focusing on local suppliers and SFSC initiatives.

Given the complex and context-dependent nature of SFSCs, a case study design was chosen for its ability to answer "how" and "why" questions, providing in-depth insights into context-specific phenomena (Ellinger & McWhorter, 2016), such as information-sharing. In SCM “personal in-depth interviews can help capture the thought processes, frames of reference and feelings about the case topic, which has meaning to the participant” (Childe & Soares, 2022, p. 132). That this was particularly applicable for local suppliers was highlighted by two experts conducting research in the field of SFSCs, as well as supported by the literature: "Due to the characteristics of being distributed in place and busy on farm, farmers were difficult to recruit when we conducted the study" (Yuan et al., 2023, p. 10). This challenge is, in itself, not surprising, given the necessity of studying information-sharing practices within this specific sector. Multiple cases were selected for cross-case analysis identifying recurring patterns and unique differences, providing a nuanced understanding of the boundary conditions for information sharing practices (Lee & Chavis, 2011). While cases are not fully independent, their interconnectedness enables meaningful comparisons of SFSC initiatives through shared local suppliers. This approach accommodates the diversity inherent in SFSCs, allowing for a

detailed analysis of their multifaceted economic, social, and cultural dimensions (Johansson, 2007).

3.2 Data collection

Sampling strategy

A non-probability purposive sampling technique was employed to identify participants with direct experience in SFSCs. This approach allows for the assumption that the selected participants possess rich, relevant insights into the phenomenon of interest (Richey et al., 2016). The sampling criteria included:

- Local suppliers: farmers connected to one or multiple SFSC initiatives.
- SFSC initiatives: facilitate direct B2B or B2C delivery of local products through a platform.
- Government agency: experts with extensive knowledge of SFSCs, included to provide a broader perspective on regulatory and structural factors influencing SFSCs.

This purposive approach was particularly relevant given the challenges associated with recruiting farmers, as stated before (Yuan et al., 2023).

Data collection method and processes

In this thesis, semi-structured interviews have collected qualitative data on the information-sharing activities of SFSC actors. Semi-structured interviews, well-suited for exploring complex, context-dependent phenomena (Adams, 2015), are commonly used to gain deeper insights into companies' willingness to collaborate, yielding richer data (Fawcett et al., 2007). The interviews are recorded, transcribed, and analysed using thematic and open coding techniques. The interview guide was informed by the literature review and tailored to the unique characteristics of SFSCs. The interview guide was developed using Zaheer and Trkman (2017) for trust and willingness to share information, Mirkovski et al. (2019) for information sharing, and Fliedner (2003) and Liu et al. (2019) for identifying relevant information types, combined with insights from an SFSC initiative. Yu et al. (2020) and Yu et al. (2021) informed the focus on DAC, and Charatsari et al. (2019) contributed to marketing and management competencies. Additionally, Mirkovski et al. (2019), examining trust and distrust in ICT-enabled information sharing, guided questions on the complex social phenomena. The interview process included refinement of the interview guides through expert feedback. Open-ended questions were used to encourage in-depth discussions while allowing for flexibility to explore emerging themes (Hoffmann, 2007). The questions were specifically tailored to accommodate the practical

communication styles and time constraints of farmers, ensuring alignment with their realities and fostering open, meaningful discussions. Interviews lasted on average 45-60 minutes and were audio-recorded with permission for transcription and analysis. To address potential biases, a "native categories" approach was employed, focusing on respondents' perspectives and minimising interviewer bias (Richey et al., 2016). Native categories refer to the naturally occurring concepts and terms that participants use to describe their experiences, enabling a richer understanding of their perspectives. Table 3 provides an overview of the interview data, summarising the roles of participants, and the duration of each interview. An 'X' indicates applicability; for example, the interviewee is a local supplier. An 'O' indicates that the interviewee is a local supplier with an additional managerial role in one of the three SFSC initiatives.

Table 3: Interview data

Interviews (not in chronological order)	**Government agency**	**SFSC initiative**	**Local supplier**	**Interview duration**
Interview 1	X			55
Interview 2		X		70
Interview 3		X		45
Interview 4		X		45
Interview 5		O	X	60
Interview 6		O	X	55
Interview 7		O	X	30
Interview 8			X	60
Interview 9			X	55
Interview 10			X	45
Interview 11			X	40
Interview 12			X	35
Interview 13			X	35
Interview 14			X	30
Interview 15			X	25
Total				685 minutes = 11 hours and 25 minutes

In the analysis of the distribution of local suppliers across the different SFSC initiatives (refer to Appendix 2), it becomes evident that there is an even distribution of supplier involvement among the discussed initiatives. It is showed that three local suppliers are active in all three of the discussed initiatives, five local suppliers participate in two of the discussed initiatives, and three local suppliers are involved in only one of the discussed initiatives, with each of these three participating in a different initiative. This distribution ensures a balanced representation of local suppliers across the SFSC initiatives, providing a solid foundation for analysing the perspectives and dynamics within these chains.

3.3 Data analysis

In this thesis, thematic analysis will be utilised to examine the data. Thematic analysis is a method for identifying, analysing, and reporting patterns or themes within data. The process includes six steps: (1) becoming familiar with the data, (2) creating initial codes, (3) looking for themes, (4) evaluating themes, (5) defining and naming themes, and (6) author the report (Sodhi & Tang, 2017). In the beginning, keywords were applied inductively to identify open codes. As the research advanced, these keywords increasingly aligned with developing theories and assisted in the formulation of axial and selective codes, aligning with Naeem et al. (2023). This process included:

1. Open Coding: initial identification of key concepts and themes, with deductive codes derived from existing literature and inductive codes emerging from the data.
2. Axial Coding: linking codes to identify relationships and patterns within the data.
3. Selective Coding: developing overarching themes to integrate findings into a coherent narrative.

The final coding scheme is shown in Table 4. A more detailed version of the coding scheme, including both initial and new codes with definitions from the literature and representative quotes, is provided in Appendix 3. Additionally, Appendix 8 includes a complete display of all codes with the corresponding quotes from each interviewee. After coding, co-occurrence, code-document and sentiment analyses were conducted, to validate the findings from the thematic analysis, and to extract tone and meaning from the data (Ainslie et al., 2023). Sentiment analysis is a feature in ATLAS.ti that evaluates the emotional tone of text data (Kalpokas, 2024), while the software's co-occurrence analysis function is particularly effective for exploring the interplay between constructs and identifying associations, as it allows researchers to examine the strength of the relationship of codes (Stewart, 2024).

Table 4: Coding scheme

[Theme: Code]	
I	**Information sharing**
	[Information sharing: Willingness to share information] [Information sharing: Trust] [Information sharing: Capabilities] [Information sharing: Information sharing]
II	**Willingness to share information**
	[Willingness to share information: Reciprocity]
III	**Trust**
	[Trust: Transparency] [Trust: Communication] [Trust: Pricing]
IV	**Capabilities**
	[Capabilities: Data Analytical Capabilities] [Capabilities: Management competencies] [Capabilities: Marketing competencies] [Capabilities: Resource heterogeneity] [Capabilities: Maturity]

3.4 Reliability and validity

Triangulation in qualitative research is "suggested that mixing qualitative methods allows for different perspectives that may otherwise be overlooked" (Carter et al., 2014, p. 545). First data triangulation, by interviewing 15 respondents, including SFSC initiatives, local suppliers, evenly distributed within the initiatives, and a government agency data triangulation was achieved (Noble & Heale, 2019). Secondly, a two-step triangulation was used to analyse the data to ensure the reliability and validity of the findings (Carter et al., 2014). First, an initial analysis was conducted using a coding scheme. This approach allowed for a structured overview of quotes, patterns, and emerging themes, which provided clarity in understanding initial results and relationships between the themes. Second, the findings from the coding scheme were validated through a co-occurrence analysis and code-document analysis in ATLAS.ti. This dual approach ensured that the initial manual analysis and the software-assisted validation complemented each other, providing robust findings. By cross-verifying results through these two distinct methods, triangulation enhanced the study's overall credibility and minimised potential biases in data interpretation.

To minimise researcher bias, the interview guide was subjected to multiple rounds of expert feedback. For the local suppliers, the guide was revised based on input from a PhD candidate and a professor, both conducting research in the field of SFSC management and possessing extensive experience in conducting interviews. Additionally, feedback was sought from the director of an SFSC initiative. This expert's feedback was particularly valuable given their direct relevance to the research context. The interview guide for the SFSC initiatives was revised after feedback from a former director of an SFSC initiative and independent of the research. This step ensured that any potential bias introduced by direct involvement of SFSC initiatives in the

study was mitigated, while still leveraging the expertise of professionals in the field. These revisions enhanced the interview guide's validity and transparency by incorporating diverse perspectives while maintaining objectivity (Kallio et al., 2016). Table 5 provides an overview of the measures undertaken to uphold the principles of reliability and validity.

Table 5: Measures reliability and validity

Test	Measures taken
Reliability & Construct validity	Data were analysed using a two-step triangulation process: initial analysis with a validation through co-occurrence and code-document analysis in ATLAS.ti
	Data triangulation ensuring multiple sources of evidence: interviews, cross-case comparisons, and respondent feedback
	All interviews are recorded and transcribed to minimise errors in processing the information of the interviewees
	Transcriptions are coded iteratively and systematically to minimise errors and align with the abductive approach
	A case study database was established and maintained with notes, interview transcripts, and coding documents
Internal validity	Cross-case analysis conducted to identify patterns and variations across cases, enhancing the understanding of contextual dynamics
	Interview guides were used, featuring a standardised initial set of questions for local suppliers, SFSC initiatives, and the government agency. These guides also allowed flexibility to delve deeper into relevant topics as needed. For more details, see Appendix 4.
	The interview guides were refined through expert feedback
External validity	Purposive sampling was used to include diverse perspectives, ensuring insights are transferable to similar SFSC contexts
	An expert from a Dutch Agriculture and Horticulture Organization, reviewed and validated the findings to ensure accuracy and relevance: "I can well envision the content as reality."
	An expert from a Dutch government agency, reviewed and validated the findings to ensure accuracy and relevance: "I can certainly agree with the findings."

Chapter 4: Findings and results

The findings emphasise the need for in-depth insights, as demonstrated by the experience of a local supplier: "In total, we've had eighteen [SFSC initiatives]. Now, we only have three left." This highlights the challenges and fragility of SFSC initiatives, reinforcing the importance of understanding what contributes to their sustainability. As a government agency explained:

> What you're doing now, even without necessarily having an agricultural background, is immersing yourself in what matters to the farmer. In my view, anyone who wants to build such a chain must deeply understand when the farmer is involved and when the ICT specialist developing the platform is engaged.

These perspectives underline the value of qualitative research in uncovering the factors critical to the success of information sharing in SFSCs. This chapter presents the findings and results of the study, focusing on information sharing, trust, capabilities, and the willingness to share information within SFSCs. The results are drawn from the analysis of interviews, with full transcripts provided in Appendix 9. The quotes are anonymised as much as possible to prevent the identification of SFSC initiatives and local suppliers through the aggregation of statements. Only when deemed essential for the clarity or validity of the analysis, the specific SFSC initiative or local supplier associated with a statement will be identified. The structure follows the main themes identified in Chapter 2.

4.1 Information sharing

The amount of information shared is limited when the ultimate goal is to achieve CPFR and the goals of the SFSC initiatives. Inventory information and product information are the most commonly shared types of data. The sharing of details such as current stock levels or product availability typically happens through lower level information sharing direct communication, relying on informal methods such as phone calls, WhatsApp, emails, or face-to-face discussions. The information sharing lacks automation, requiring manual input and updates. This method of communication, while straightforward, is not optimised for structured or continuous data exchange, making it less effective in achieving advanced CPFR goals. Capacity information is less frequently shared, as highlighted by local suppliers who lack the resources or systems to provide detailed forecasts about production capabilities. Sustainability information, while increasingly important, is not commonly shared due to a lack of standardised data collection practices among local suppliers. Lastly, strategic information, such as pricing strategies or long-term planning, is the least shared, reflecting concerns about transparency and

the competitive nature of such information. Only two local suppliers were sharing more advanced information, such as sales data and collaborative plans, though these exchanges were not automated.

To quantify the relationships between key constructs related to information sharing, a co-occurrence analysis was conducted using ATLAS.ti. All the results of the co-occurrence, code-document, and sentiment analyses conducted using ATLAS.ti are comprehensively presented in Appendix 5. A co-occurrence analysis is particularly effective for exploring the interplay between constructs and identifying associations, as it allows researchers to examine the strength of the relationship of codes (Stewart, 2024), as shown in Table 6. The strongest co-occurrence with Information Sharing is with Trust (0.58), followed by Willingness to Share Information (0.26), and Capabilities (0.25). Another notable co-occurrence is between Trust and Willingness to Share Information (0.40).

Table 6: Co-occurrence analysis ATLAS.ti of all themes

	Capabilities	Information Sharing	Trust	Willingness to Share Information
Capabilities		0,25	0,27	0,20
Information Sharing	0,25		0,58	0,26
Trust	0,27	0,58		0,40
Willingness to Share Information	0,20	0,26	0,40	

4.2 Willingness to share information

The willingness to share information emerges as a multifaceted concept influenced by several interrelated factors. Trust plays a central role, with stakeholders more willing to share data when they trust that it will not be misused. Reciprocity also shapes willingness, as stakeholders seek balanced exchanges where mutual benefits are evident.

Table 7 illustrates the distribution of the sentiments for the willingness to share information across the local suppliers, as a code-document analysis. Sentiment analysis is a feature in ATLAS.ti that evaluates the emotional tone of text data (Kalpokas, 2024). By integrating sentiment analysis with code-document analysis, which compares the sentiments per interviewee, a deeper understanding is gained of the contextual elements in play. Overall, negative mentions of the willingness to share information (54.98%) slightly outweigh positive mentions (45.02%). However, the variation underscores the need to comprehend the conditions under which willingness to share is high or low.

Table 7: Code-document analysis with sentiment analysis Willingness to Share information

	Willingness to Share Information: Negative 351	Willingness to Share Information: Positive 334	Totals
2: Transcript interview Local supplier A 111	57,14%	42,86%	100,00%
3: Transcript interview Local supplier B 116	48,94%	51,06%	100,00%
4: Transcript interview Local supplier C 89	37,50%	62,50%	100,00%
5: Transcript interview Local supplier D 180	72,34%	27,66%	100,00%
6: Transcript interview Local supplier E 107	55,56%	44,44%	100,00%
7: Transcript interview Local supplier F 129	69,57%	30,43%	100,00%
8: Transcript interview Local supplier G 114	44,74%	55,26%	100,00%
9: Transcript interview Local supplier H 126	72,09%	27,91%	100,00%
10: Transcript interview Local supplier I 211	51,43%	48,57%	100,00%
11: Transcript interview Local supplier J 114	48,65%	51,35%	100,00%
12: Transcript interview Local supplier K 157	46,81%	53,19%	100,00%
Totals	54,98%	45,02%	100,00%

One local supplier explains her willingness to share information as follows:

> SFSC initiatives can have all the information we have. Why not? Other entrepreneurs can also view the figures, such as the number of customers per week and the revenue, and we share tips to help each other move forward.

At the same time, the same local supplier nuances their willingness regarding product information and reciprocity:

> The willingness to share information is lower with initiatives where the process is time-consuming and cumbersome, and the balance [reciprocity] is not right. I am starting to become a bit more cautious about what I offer. Because, with these initiatives it often goes like this when offering something new or seasonal: 'do you have a photo?', then, 'what is the nutritional value?', and after that, 'what's the price?'. And all of this happens via WhatsApp, and by the time it's all done, I can't help but think; 'this is such a hassle'. [...] And if I say I want to add 10% for our labour, there's grumbling. Then I think, if they don't appreciate us, we'll just stop. [...] They could come by themselves to take photos instead of constantly asking me for updates. It would be nice if they made the effort for a change. [...] It's about give and take, and the responsibility shouldn't fall entirely on me.

This perspective emphasises that local suppliers are solely responsible for managing tasks like providing photos or product details, which creates additional workload and decreases their willingness to share information if the reciprocity is not balanced.

Reciprocity

The findings emphasise the importance of maintaining a balanced reciprocity in investments between initiatives and suppliers. Local supplier K, that also has a managerial role in an SFSC initiative stated:

> Sharing information only works when both sides benefit. If logistics are well-organised and can integrate with our inventory system, it's ideal. But with the suppliers we work with now, that's rare. Suppliers need to put effort into maintaining real-time inventory for it to work, and without that mutual benefit, the willingness to do so is limited.

When investments are perceived as inequitable, it can lead to frustration and a reduction in the willingness to share information. This principle of reciprocity is crucial for information sharing, as highlighted by one SFSC initiative: "Sharing information works both ways, if you share information, you receive information in return." Local suppliers have indicated that they would benefit from more information from SFSC initiatives, which would also be beneficial for reciprocity. This includes both knowledge sharing, such as informal information evenings, and information to achieve CPFR like demand forecasts:

> If we ask them [the SFSC initiative] for a forecast until June, we can reserve what we need for them. It's also helpful to get this kind of information from less mature initiatives, as it helps us plan what to grow.

All initiatives have demand forecast information available, as noted by one less mature SFSC initiative:

> We could inform the local suppliers about the demand for certain products during specific periods. This allows them and their neighbours to serve a larger share of the market together. We do have that kind of data, of course.

Sharing this information will foster collaboration by increasing trust, as the initiative shows vulnerability, and will eventually lead to more information sharing by the local suppliers. Overall, local suppliers felt they were treated fairly and were enthusiastic about the policies of the SFSC initiatives. However, when asked about their willingness to share information, it often emerged that their willingness depended more on reciprocity than on an clear enthusiasm to

share information. The aspect of reciprocity implies that valuable information is also being shared by the SFSC initiatives, which are willing to do so, but are currently not sharing due to an asymmetry in what they both parties want in terms of information. This reciprocity would increase information sharing and enhance supplier involvement. Nevertheless, four local suppliers expressed dissatisfaction with one initiative, feeling that the pricing for farmers was unfair, which undermined their trust.

4.3 Trust

The fact that trust takes time and is fragmented is often mentioned as the foundation of trust-building mechanisms:

- "They need to see it to believe it." Quoted by SFSC initiative C.
- "I'm unsure about [SFSC initiative], but my wife is more enthusiastic. I don't know what to expect or how extreme it [the succes] will be." Quoted by local supplier A
- "Trust is crucial in SFSCs; even if it takes 10 years to build, that's still nothing." Quoted by a government agency.

Table 8 represents a code-document analysis, comparing the frequency with which trust is coded as positive or negative in the sentiment analysis across different local suppliers. The results show variability in trust perceptions. For example, Local Supplier F exhibits the highest percentage of negative trust mentions at 66.67%, while Local Supplier C has the highest percentage of positive trust mentions at 65.00%. Overall, positive trust (52.15%) slightly outweighs negative trust (47.85%), but the distribution is far from consistent across suppliers.

Table 8: Code-document analysis with sentiment analysis Trust

	Trust: Negative 135	Trust: Positive 183	Totals
2: Transcript interview Local supplier A 111	60,00%	40,00%	100,00%
3: Transcript interview Local supplier B 116	56,25%	43,75%	100,00%
4: Transcript interview Local supplier C 89	35,00%	65,00%	100,00%
5: Transcript interview Local supplier D 180	54,55%	45,45%	100,00%
6: Transcript interview Local supplier E 107	44,44%	55,56%	100,00%
7: Transcript interview Local supplier F 129	66,67%	33,33%	100,00%
8: Transcript interview Local supplier G 114	36,00%	64,00%	100,00%
9: Transcript interview Local supplier H 126	41,18%	58,82%	100,00%
10: Transcript interview Local supplier I 211	42,86%	57,14%	100,00%
11: Transcript interview Local supplier J 114	45,45%	54,55%	100,00%
12: Transcript interview Local supplier K 157	44,00%	56,00%	100,00%
Totals	47,85%	52,15%	100,00%

This inconsistency is partly due to the diverse perspectives on different initiatives, and the overlapping local suppliers from those different initiatives. This indicates that trust is perceived and discussed differently depending on the specific supplier, highlighting the need for tailored approaches to addressing trust issues in SFSC initiatives. Trust and the willingness to share information are reduced when knowledge resources are not respected and communication is not transparent, as mentioned by one local supplier:

> I enjoy sharing knowledge, but not everything. […], you sometimes see them going elsewhere using information they learned here. […] it's the reason I no longer share all the details about my crops. For example, if someone calls and asks, 'How's that crop going?' and I explain everything, they might take that knowledge to [SFSC initiative], and stop buying from me. I've addressed this with [SFSC initiative] because I don't think it's fair.

Also, the mentioned SFSC initiative states the following about sharing knowledge resources: "what we sometimes do is identify and tell when a supplier uses certain techniques that another supplier might lack". Although these efforts are made with the best intentions, they are not always appreciated and could lead to a loss of trust and increased barriers to sharing information. The government agency also mentions that they would be careful in advising in sharing information, indicating the need for transparent agreements:

> I would be cautious about telling farmers to "just share all your information," as it means giving something away. I wouldn't say, "you can easily do that with this party," because I don't know their intentions or what happens behind the scenes. […] To increase farmers' willingness to share data, it's about proving trust. Word-of-mouth is important; start, prove the benefits, and it will spread naturally.

Trust is the strongest predictor of information sharing outcomes, as evidenced by a co-occurrence coefficient of 0.58. Interviews with local suppliers reveal diverse perspectives on trust. Some suppliers emphasized positive trust dynamics, highlighting long-term relationships and transparent practices that encouraged information sharing. As earlier stated, one local supplier with high trust noted: "SFSC initiatives can have all the information we have. Why not?" Conversely, other suppliers raised concerns about unequal power dynamics and inconsistent communication, which undermined their trust. This was reflected in a statement by a supplier with low trust: "No one gets that [planning and forecasting] information. Why should they?" These contrasting views highlight the varied experiences of local suppliers and the

dynamic role of trust in shaping information-sharing behaviour within SFSCs. SFSC initiatives emphasise that building trust is a gradual process, often strengthened through consistent communication and long-term collaboration, such as resolving logistical challenges like pick-up times. This demonstrates that trust is not static but develops over time through ongoing interactions and effective communication. Building trust requires sustained effort and mutual understanding, which, in turn, strengthens logistical processes and fosters better relationships between suppliers and initiatives.

Transparency

Trust and transparency are essential in SFSC initiatives. Suppliers highlight the importance of transparent data management, such as delivery notes and access to hubs to observe handling processes. A government agency states the importance of trust: "Reducing costs and increasing efficiency in SFSC initiatives ultimately relies on trust." Transparency in pricing and product traceability is crucial. For example, some SFSC initiatives maintain price transparency by clearly showing how much of the product price goes to the farmer, and the platform. In contrast, initiatives with less transparency can create confusion and dissatisfaction. Smaller initiatives, including some non-profits, tend to be more transparent with customers and suppliers, fostering trust and collaboration, while larger initiatives prioritise protecting their marketing strategies, resulting in less transparency and potential dissatisfaction. When external factors, such as supermarkets, pressure farmers to lower prices without negotiation, their options and control over sales diminish, resulting in reduced initial trust when they first participate in an SFSC initiative. Another type of transparency linked to food safety and the marketing skills of local suppliers involves using product transparency. Product transparency is enhanced through tools like QR codes, allowing consumers to trace origins, such as milk from specific cows. Certifications like Skal or Planetproof add transparency but are often seen as compliance measures rather than communication tools.

Communication

Communication between SFSC initiatives and local suppliers is described as generally effective and characterised by short lines and frequent interactions. Local suppliers highlight the importance of trust and open dialogue, often facilitated through direct and informal channels like phone calls, WhatsApp, emails, or face-to-face discussions. For instance, some initiatives maintain weekly contact to resolve operational issues and ensure smooth logistics, such as clear pick-up times or last-minute order adjustments. This consistency builds trust. Suppliers also emphasise the benefits of open meetings fostering a collaborative atmosphere. Smaller

initiatives are particularly valued for their straightforward communication and mutual appreciation of farmers' efforts. In contrast, larger or less transparent initiatives are criticised for one-sided communication or a lack of clarity in operations.

Pricing

Pricing emerged as an important factor influencing trust dynamics within SFSCs, despite not being explicitly included in the interview guide. Suppliers' perspectives highlight how pricing strategies and procurement structures vary across initiatives, shaping their satisfaction and trust. Local suppliers generally value pricing strategies that start with the farmer's set price, ensuring transparency and fairness. However, pricing-related frustrations also surfaced, particularly when SFSC initiatives demanded additional services or failed to communicate effectively. One local supplier noted issues with one SFSC initiative: "There's a clash with [SFSC initiative] over price. They dropped out on price and just didn't let us know, which was really rude."

Another local supplier raised concerns about cost pressures and delays in payments, highlighting that such practices eroded trust: "Despite the initiative's claims of supporting farmers, it pressures them into accepting lower prices and delays payments, using farmers' money for its own leverage." A third local supplier similarly noted the tension between effort and returns which, again, underscores the reciprocity between the effort and the gains. In contrast with these local suppliers, local supplier I appreciated fair pricing practices, stating: "[SFSC initiative] gives farmers a fair price, and we're very satisfied with that." It can be concluded that perceptions of pricing fairness are heterogeneous across different local suppliers. The overarching insight from these observations is that the implementation of fair pricing strategies enhances supplier satisfaction. However, this effect is influenced by the procurement strategy of an initiative, with initiatives that do not directly engage in purchasing being less directly affected. Nonetheless, they could still be impacted, particularly through dissatisfaction with the percentages added to farmers' prices, although this was mentioned only once.

The discussed SFSC initiative highlights that their pricing strategy, combined with collaborative planning, enhances supplier satisfaction and operational efficiency. As stated:

> The yearly and cultivation planning ensures that we have more structured policies. Farmers might get slightly less, but they are happier because they know well in advance, allowing them to better plan their staffing and harvests.

However, suppliers expressed varied responses to this strategy. While one local supplier appreciated the security of long-term agreements, others felt constrained, perceiving it as

"squeezing." The balance of power between buyers and suppliers is particularly important among local suppliers. As one initiative explained:

> Imagine you are an egg farmer selling more eggs to a single buyer. Over time, that buyer gains bargaining power and demands discounts because of the volume they purchase. This dynamic is similar with supermarkets, where they might say, 'If you don't supply at that price, I'll go elsewhere.' In that sense, this makes them [local suppliers] a vulnerable target group.

4.4 Capabilities

Table 9 represents a code-document analysis comparing the frequency with which capabilities are coded as positive or negative in the sentiment analysis across different local suppliers. The results reveal again high variability, in how capabilities are perceived. For instance, Local Supplier D exhibits the highest percentage of negative mentions at 75.00%, indicating significant challenges in their perceived capabilities. In contrast, Local Supplier C and Local Supplier G have the highest percentage of positive mentions, both at 77.78%, reflecting stronger confidence in their abilities.

Table 9: Code-document analysis with sentiment analysis Capabilities

	Capabilities: Negative 84	Capabilities: Positive 113	Totals
2: Transcript interview Local supplier A 111	66,67%	33,33%	100,00%
3: Transcript interview Local supplier B 116	41,67%	58,33%	100,00%
4: Transcript interview Local supplier C 89	22,22%	77,78%	100,00%
5: Transcript interview Local supplier D 180	75,00%	25,00%	100,00%
6: Transcript interview Local supplier E 107	63,64%	36,36%	100,00%
7: Transcript interview Local supplier F 129	62,50%	37,50%	100,00%
8: Transcript interview Local supplier G 114	22,22%	77,78%	100,00%
9: Transcript interview Local supplier H 126	66,67%	33,33%	100,00%
10: Transcript interview Local supplier I 211	57,14%	42,86%	100,00%
11: Transcript interview Local supplier J 114	50,00%	50,00%	100,00%
12: Transcript interview Local supplier K 157	46,15%	53,85%	100,00%
Totals	52,17%	47,83%	100,00%

Overall, negative mentions of capabilities (52.17%) slightly outweigh positive mentions (47.83%), indicating a tendency toward identifying challenges or limitations. However, the distribution of perceptions varies considerably between suppliers, highlighting the diverse

experiences and self-assessments within the network. This variation underscores the importance of tailored strategies to enhance the capabilities of local suppliers.

Data Analytical Capabilities

Suppliers with advanced technological resources and analytical skills integrate more smoothly into SFSC platforms. For instance, younger farmers or those with digital tools are often better equipped to manage inventory, forecasts, and customer data, while others rely on external support from initiatives. SFSC initiative C highlighted the generational gap: "With the younger generation, you can often achieve more, because they understand it [systems in general] better." However, initiatives acknowledge this disparity and offer additional assistance to farmers with high-quality products but limited knowledge resources, ensuring their continued participation. Local suppliers with a high willingness to share information and strong reliability but lower capabilities express that they see value in sharing analytical information. However, they also acknowledge needing support to integrate this effectively. They are open to this idea, as reflected in the following statement by local supplier B, which also highlight the interplay between reciprocity, resource scarcity, and low DAC:

> Ideally, meeting with a data analyst at regular intervals to review key insights and discuss what is working and what isn't would be very useful. We often manage many responsibilities, making data analysis a lower priority. Since it doesn't require immediate attention or deliver clear financial benefits, more urgent tasks, such as meeting customer needs, take priority.

This perspective is also mentioned by local supplier F, who notes: "Maybe farmers need more guidance or a little push". Similarly, local supplier J highlights their low self-perceived DAC, stating: "I would really need support from the initiative if they want that kind of information, because it's too complex. But I would be willing to share that information if I had it."

Management competencies

Management competencies among local suppliers are deeply influenced by their ability to navigate risks and adapt to an uncertain regulatory environment. Local suppliers with a higher level of management competencies, could better understand the value of information, related to their higher willingness to share information. When asked about the risks they foresee as organisations, local suppliers highlighted a combination of challenges at both the local and national levels. Local supplier C summarised this by stating: "I think risks are present both in the SFSC and at the national level. Farms are always in the spotlight." A recurring theme in the

interviews was the unclear and frequently changing regulations, which impact farmers' operations and decision-making processes. SFSC initiative A captured the implications of these regulatory shifts on trust and management stating that uncertainty from ever-changing regulations undermines trust among local suppliers, making it difficult to invest in information-sharing and long-term planning, as they struggle to adapt their businesses to shifting rules. One local supplier expressed uncertainty about whether the decision to enhance her competitive advantage by going organic would pay off: "And with the Dutch government pushing for more organic, we could end up selling below cost, as happens with conventional products." Although local suppliers were aware that these risks are inherent to entrepreneurship, the regulatory environment places additional burdens on farmers. They are required not only to manage their daily operations effectively but also to anticipate and adapt to external pressures. This uncertainty, combined with limited time and resources, hampers their ability to confidently engage in information-sharing systems and invest in innovative practices.

Marketing competencies

Marketing approaches among suppliers also differ, reflecting resource heterogeneity. As one supplier remarked: “He is more comfortable spending a ton on marketing, while I am more inclined to invest in machinery. We all have different priorities, but I believe that mix is what leads to success.” These differences underline the importance of bundling their competencies in this heterogeneous environment to achieve collective success within SFSCs. The lower marketing competencies of local suppliers and their impact of their sustainability in SFSCs is explained by the government agency, stating that local suppliers in SFSCs often lack marketing skills and consumer engagement strategies, but with training and support, they can improve direct sales, gain pricing control, and build financial reserves for future transitions. These trainings aim to enhance local suppliers' capabilities and higher-level capabilities are related to higher levels of information sharing. Additionally, suppliers lacking in marketing and management competencies express their dependency on SFSC initiatives for support, showing a readiness to develop these areas.

Resource heterogeneity

The diversity in resources, both tangible, like technologies, and intangible, like trust and capabilities, shapes the dynamics of SFSCs. Local suppliers with strong reputations and connections, for example, attract consistent demand despite limited technological capabilities. Resource differences also influence suppliers' ability to manage information. Capabilities among local suppliers vary greatly, making personalisation an effective tool in addressing these

differences in increasing information sharing. A more mature SFSC initiative employs a strategy that focuses on personalised engagement with local farmers, emphasising collaborative planning based on each farmer's unique capabilities. They explain:

> We also enjoy working with smaller farmers; we sit down with them at the end of the year or in early January to determine how many hectares they can cultivate for us. It's important to consider what a supplier is capable of. Not everyone can grow certain crops, like tomatoes without a greenhouse, and cauliflower turns out to be a challenging crop. So, we look at what the farmer can and wants to do. Some farmers prefer not to experiment and do the same thing every year, while others are open to trying something new. In this way, we make our plans together.

Local suppliers have indicated that they value this personalised approach, making it an important aspect of the initiative's strategy. Resource-rich suppliers often act as stabilising agents within the supply chain. For example, organic producers provide specialised products that complement bulk farming, allowing SFSCs to cater to diverse market segments. However, collaboration is only effective when the differences in suppliers' resources and experience are acknowledged. As one local supplier, with managerial functions in an initiative observed:

> We do need each other. We need farmers because, without them, the platform wouldn't be very useful either. But we know what we bring to each other to achieve something.

SFSC initiatives show heterogeneity in technological support. Some provide dashboards to streamline supplier operations, while others focus on sales platforms, leaving procurement underdeveloped. One initiative highlighted the need for a farmer portal to validate deliveries: "We have primarily focused on the sales side in terms of IT development, and now we need to focus on the procurement side." Resource heterogeneity stems from the diverse needs of SFSC initiatives, which are themselves a result of varying levels of maturity of the SFSC initiatives.

Maturity

SFSC initiative maturity influences information-sharing dynamics among local suppliers. For example, local supplier C, despite high capabilities and willingness to share, notes limited information sharing due to a lack of specific requests from the initiative:

> Our entire food safety system is integrated with computer systems, linked to a detailed log of production data, but this information is not collected specifically for the SFSC. We would be willing to share this information, but they haven't asked for it.

This underscores the role of SFSC initiative maturity in fostering information exchange and highlights information asymmetry between the potential for and actual information sharing, as initiatives focus only on certifications they deem sufficient. One less mature initiative confirmed: “We currently have all the information we need but are open to exploring future possibilities, such as production capacities and inventory data, which would support the platform’s growth.”

4.5 Results

Overall, the findings underscore the fragility of SFSC initiatives, with most failing to sustain long-term. Key challenges identified include the need for trust, robust information sharing, and balanced reciprocity between participants. Alongside transparent communicating, this will lead to decreased information asymmetry and increased information sharing. The key patterns in the findings can best be summarised as follows:

- Information sharing by local suppliers in SFSCs is minimal, as evidenced by only 18% of them exhibiting higher levels of information sharing (G, I). 100% of the local suppliers with lower willingness to share, lower trust, and lower capabilities exhibit low levels of information sharing (A, D, F).
- 80% of local suppliers with a high willingness to share, yet low levels of information sharing, encounter this issue due to information asymmetry, which is linked to the maturity level of the SFSC initiatives (B, C, J, K). Furthermore, 75% of these suppliers also possess higher capabilities, having valuable information (B, C, K).
- 100% of the local suppliers with higher capabilities are also willing to share information, as they are experienced and recognise the value of the information (B, C, G, K). Additionally, 100% of the local suppliers that possess lower capabilities and have a higher willingness to share, also have higher trust and would be willing to accept help to increase their capabilities (E, J).
- A clear understanding of mutual benefits and reciprocity boosts willingness to share information, as shown by 82% of local suppliers who are more willing when they perceive value and reciprocity in SFSC initiatives (A, B, D, F, G, H, I, J, K), validated by two SFSC initiatives and a government agency. Also, all local suppliers that demonstrate a lower willingness to share do so due to a lack of perceived benefits or reciprocity (A, D, F, H, I).

Chapter 5: Discussion

The discussion is structured as follows: firstly, it provides a conclusion that answers the empirical research questions. Subsequently, it outlines the theoretical contributions, examining the literature in relation to the conclusion based on the empirical findings obtained through semi-structured interviews and thematic analysis. Thereafter, managerial recommendations are presented to answer the problem statement, guide policymakers and SFSC practitioners in fostering information sharing within SFSCs. Finally, the chapter concludes by reflecting on the limitations of this master's thesis and proposing potential directions for future research.

5.1 Conclusion

The findings and results from Chapter 4 underscore the potential for SFSCs to adopt CPFR principles, while also addressing current limitations caused by the insufficient maturity of both SFSC initiatives and local suppliers. The conclusions provides answers to the empirical research questions of this master's thesis:

4. *What factors drive and hinder participation and collaboration among SFSC stakeholders?*

Trust, mutual benefits, and alignment with shared values, such as sustainability and local economic development, are key drivers of participation and collaboration among SFSC stakeholders. Trust fosters a willingness to share information and enhances supplier engagement, though actual information sharing depends on whether SFSC initiatives actively request and utilise the data. Factors such as fair pricing, transparency, and personalised support further encourage collaboration, especially when farmers perceive clear reciprocal benefits from their contributions. Suppliers are less inclined to collaborate when the perceived effort required outweighs the benefits, as frustrations over repetitive administrative demands or a lack of reciprocal effort from SFSC initiatives illustrate. Addressing these challenges and maintaining a balance between effort and reward is essential for sustaining collaboration within SFSCs.

5. *Under what conditions does information sharing improve due to enhanced trust, capabilities, and the willingness to share information in SFSCs?*

Trust increases with transparency in pricing and operations, clear mutual benefits, and through informal communication in less mature SFSCs, while integrating technology with personal engagement is necessary in mature ones. Access to technology like supplier portals enhances capabilities and eases information sharing, particularly when initiatives invest in developing

suppliers' data analysis, management, and marketing capabilities, tailored to their heterogenous resources. Furthermore, a clear understanding of mutual benefits and reciprocity further enhances the willingness to share information.

5.2 Theoretical contributions

The empirical findings are consistent with the existing literature. Information sharing in SFSCs often relies on informal, ad hoc methods like WhatsApp and email, reflecting limited technological adoption similar to findings by Paciarotti and Torregiani (2020). While theoretical models suggest structured, real-time data frameworks like CPFR (Fliedner, 2003), actual implementation lags due to digital infrastructure deficits (Paciarotti & Torregiani, 2020). While low level information, like prices, operational information, is shared, strategic and sustainability data remain under wraps because of transparency concerns and workload issues. Despite recommendations from Yuan et al. (2023) for adopting digital tools such as IoT and blockchain, their implementation does not endure within SFSCs. However, Wiengarten et al. (2010) suggest that even low-quality data can enhance performance, indicating the potential benefits of scalable, low-technology solutions. Empirical data shows gaps in information sharing, often from a failure to explicitly request information or ignorance of what other supply chain partners hold, leading to negative effects from information asymmetry (Clarkson et al., 2007). However, proactive information sharing can mitigate these effects (Shen et al., 2018). The literature also confirms that sharing fosters trust, enhancing further information exchange (Cai et al., 2012; Cheng et al., 2008; Pooe et al., 2015), echoing sentiments from an SFSC initiative that sharing leads to reciprocal information flow. These factors are crucial for effective information sharing.

The findings highlight the importance of trust in SFSCs, aligning with Huo and Jiang's (2007) observation that trust deficits inhibit information sharing due to fears of data misuse. Trust appears highly dynamic and varies greatly, not just between suppliers but within the same supplier's different relationships across SFSC initiatives, aligning with the importance of trust-building measures like transparent governance and fair profit-sharing (Karadayi-Usta, 2019). Additionally, consistent with Mohr and Sohi (1995), the frequency and quality of communication are key in building trust. Yet, communication barriers, such as a poor understanding of SFSC platforms, can erode trust. Pricing emerged as a critical but underexplored factor influencing trust and collaboration. While the literature acknowledges transparency's role in fostering trust (Vittersø et al., 2019), this study reveals how pricing strategies shape perceptions of fairness and reciprocity.

The findings challenge the traditional distinction between zero-level and higher-level capabilities (Song and Liao, 2018), revealing that SFSC participants require both, such as inventory management and DAC. Local suppliers vary in capabilities; those with higher DAC are more willing to share information, consistent with Nisar et al. (2022) on data-driven decision-making. However, even highly capable suppliers struggle to fully develop advanced capabilities that involve skill integration and adaptation to changing environments (Song and Liao, 2018). Local suppliers relying on manual forecast methods show a lack of capabilities. Local suppliers deficient in marketing and management competencies often depend on SFSC initiatives for growth, indicating a need for targeted support and competency development as emphasised by Charatsari et al. (2019).

The findings highlight that the willingness to share information within SFSCs is influenced by trust, perceived mutual benefits, and resource availability, supporting Zaheer and Trkman's (2017) focus on reciprocity but also noting SFSC-specific challenges. For example, hesitance to share critical data like production plans arises from fear of exploitation and power imbalances. Moreover, the thesis finds that the readiness to share varies with the maturity of the SFSC initiative. More mature initiatives that offer clear benefits, such as collaborative planning, tend to see greater information sharing from local suppliers, resonating with the literature on mutual advantages (Fawcett et al., 2007).

RBV, SET, and ANT

This thesis responds to Zaheer and Trkman's (2017) call that information sharing should be derived from an unifying theory, which is crucial and underexplored. The findings align with and extend Resource-Based View (RBV), Social Exchange Theory (SET), and Actor-Network Theory (ANT). The primary objective of linking RBV, SET, and ANT, to SFSC literature is to uncover how SFSC dynamics align with and extend its principles by integrating these theoretical views. The secondary objective is to enhance RBV, SET, and ANT itself by expanding the theories with a new context, SFSCs. In Appendix 6, the analysis of the theoretical contribution is presented, concluding that, to the best of my knowledge, these theories have not previously been applied to the specific context of SFSCs.

RBV is typically considered an internal perspective aimed at achieving a competitive advantage through the possession and deployment of valuable, rare, inimitable, and organised resources (Barney, 1991). Barney (2012) argues that heterogeneous SCM capabilities, within the logic of markets, can enable competitive advantages towards other markets. Applying RBV to the

context of SFSC connects to the "hypotheses that suggest why it is sometimes difficult for one firm to achieve the same high levels of economic value created by another firm, even when those firms are operating in approximately the same markets or industries" (Barney et al., 2021, p. 1938). Addressing the perceived resource heterogeneity to create competitive advantages over traditional food suppliers is what connects the RBV to SFSCs. Additionally, it has been noted that further exploration is needed regarding the connection between RBV and network theory (Barney et al., 2021). Burt and Soda (2021) link network theory to RBV, suggesting that network brokers (such as SFSC initiatives) play a strategic role by bridging different parts of the market (SFSCs). This enables organisations (e.g. local suppliers) to exploit new opportunities and integrate diverse resources (such as capabilities, trust and willingness to share) effectively. Moreover, as Law (1992, p. 389) notes, ANT advances further as a "relational and process-oriented sociology that treats agents, organisations, and devices as interactive effects". Thus, in the framework that discusses integration of diverse resources as seen in RBV, objects, ideas, processes, and other relevant entities are acknowledged as crucial in co-creating social scenarios alongside human actors (Law, 1992). Law (1992) emphasises that both physical resources (such as agricultural products and computers) and intangible resources (such as knowledge, cultural values and community relationships) together form a network (SFSC). Thus, in the context of SFSCs, each element contributes to the functionality and resilience of the system, with the interaction and equivalence between these resources being crucial to the chain's success. Building on this sociological foundation, a third theory relevant to this context is SET, underpinned by four key assumptions that are highly applicable to the reciprocal context of SFSCs (Burns, 1973, p. 88):

- "Social behaviour can be explained in terms of rewards, where rewards are goods or services, tangible or intangible, that satisfy a person's needs or goals."
- "Individuals attempt to maximise rewards and minimise losses or punishments."
- "Social interaction results from the fact that others control valuables or necessities and can therefore reward a person. In order to induce another to reward him, a person has to provide rewards to the other in return."
- "Social interaction is thus viewed as an exchange of mutually rewarding activities in which the receipt of a needed valuable (good or service) is contingent on the supply of a favour in return (usually/ immediate)."

In summary, these frameworks help interpret SFSC dynamics and derive actionable insights, based on testable hypotheses.

5.3 Managerial recommendations

As we delve into the managerial recommendations, a comprehensive answer is provided to the problem statement:

How can trust, capabilities, and the willingness to share information be enhanced to foster information sharing in SFSCs?

To enhance trust, capabilities, and willingness to share information in SFSCs, several strategies can be employed. Mutual benefits and reciprocity clearly foster trust and increase the willingness to share information. Providing training and valuable insights can boost supplier capabilities and confidence in data-sharing, which reinforces trust. This approach not only addresses concerns about suppliers being replaceable but also enhances the competitive advantages of local suppliers over traditional food suppliers.

Investing in technological tools such as supplier portals and dashboards improves the efficiency of information sharing. It is crucial to develop local suppliers' analytical, managerial, and marketing capabilities, given they lack the capabilities for CPFR. SFSC initiatives should prioritise incremental resource-building strategies, starting with achievable goals and gradually progressing towards comprehensive CPFR implementation, as detailed in Appendix 7 (Veelenturf et al., 2001).

SFSC initiatives can further enhance trust by promoting transparency and sharing key data such as forecasts and market demand trends, which empowers suppliers and encourages them to share more willingly. Aligning SFSC goals with supplier interests fosters a shared vision, reduces conflicts, and promotes collaboration. Addressing information asymmetry through open dialogue and clear communication about operational processes, pricing, and mutual benefits is crucial, as noted by Lotfi et al. (2013). It clarifies expectations and allows stakeholders to agree on accessible information. Essential to managing this asymmetry, SFSC initiatives must determine what information to share, who the recipients are, how sharing should occur, and the timing of sharing. Maintaining an appropriate formality in communication channels, such as WhatsApp or portals, with a personal approach helps build lasting relationships where suppliers feel valued and respected, thereby enhancing their willingness to collaborate (Mohr & Sohi, 1995).

Together, these strategies create a feedback loop where trust, capabilities, and willingness are mutually reinforced, fostering a sustainable culture of information sharing within SFSCs aligned with the goals of CPFR. Recognising that not every SFSC is identical or at the same

level of maturity, initiatives that excel in certain areas may not need to focus further on those, based on their self-perceived capabilities, which enhance the generalisability of recommendations. Additionally, the focus on the diverse differences in trust, capabilities, and willingness, as well as the boundary conditions of information sharing, further contributes to the generalisability. The integration of RBV, SET, and ANT provides a comprehensive roadmap for tackling both practical and theoretical challenges in SFSCs.

5.4 Limitations and future research directions

This thesis, which involved 15 interviews with local suppliers, SFSC initiatives, and one government agency, provided valuable insights into the dynamics of information sharing within SFSCs. However, several limitations impact the generalisability and robustness of the findings. The heterogeneity and limited size of the interview sample pose challenges, as a sample of 15 interviews is often insufficient to achieve data saturation in complex settings, limiting the capture of a full spectrum of perspectives and themes (Bekele & Ago, 2022). Although smaller samples can still yield valuable insights for exploratory studies, especially in complex social phenomena (Crouch & McKenzie, 2006), future research should aim to expand the sample size to enhance the robustness of the findings and provide more nuanced interpretations of dynamics within SFSCs. Also, the overlap among interviewed local suppliers participating in multiple SFSC initiatives provided a comparative perspective but limited the independence of cases and complicated cross-case analysis. Future studies should use a multi-case study approach with fully independent cases to mitigate biases and better understand diverse practices and challenges within SFSCs. It would be particularly valuable if this were part of a longitudinal study, as it would offer deeper insights into how trust, capabilities, and willingness, evolve, impacting information sharing and collaboration within SFSCs over time.

Lastly, exploring other supply chain contexts not yet linked to RBV, SET, or ANT could reveal valuable insights, as demonstrated in this master's thesis for the context of SFSCs. Hypotheses testing could lead to new applications of existing theoretical frameworks, further enriching our understanding of supply chain dynamics across different settings.

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Appendix 1: Information categories

This appendix contains Table 10, that illustrates various categories of data points and measurement methods within the supply chain. These served as a reference framework during the interviews, providing a basis for understanding the type of information discussed. The data points are based on research by Fliedner (2003) and Liu et al. (2019), and on input from a director of an SFSC initiative, derived from their email response to an inquiry regarding the information they would desire to enhance collaboration.

Table 10: Information categories

Category	Data point	Measurement method	Overarching indicator
Inventory information	Batch information	Production period, location, batch number, inventory level	Traceability, food safety
Product information	Product information	Weight, size, nutritional value, shelf life, prices	Product quality, nutritional value
Capacity information	Capacity	Production capacity, inventory capacity	Capacity
Sustainability information	Soil quality	Soil analysis (pH, nutrients, organic matter)	Soil health, biodiversity
	Pesticide use	Type, quantity, frequency	Environmental impact, food safety
	Biodiversity	Species richness, number of species, presence of indicator species	Ecological sustainability
	Climate impact	CO2 emissions, methane emissions per product/batch	Carbon footprint, climate efficiency
	Water consumption	Water use per hectare/per product	Water use efficiency, sustainability
	Energy consumption	Energy consumption per hectare/per product (kWh)	Energy efficiency, sustainability
	Sustainable practices	Use of organic farming, regenerative methods	Sustainability level, environmental friendliness
	Certifications and standards	Certified standards	Compliance level, sustainability
	Welfare standards	Applied standards for animal welfare, social audits	Animal welfare, social sustainability
Strategic information	Planning	Production forecasts, supply planning, demand planning, inventory	Market responsiveness, supply chain agility
	Agreements	Joint business plans, front-end partnership agreements	Long-term forecasting
	Financial	Sales data	Profitability
	Employment	Number of jobs, working hours, working conditions	Social sustainability

	Working conditions	Number of incidents, employee reviews, audits	Welfare standards, social engagement
	Use of technology	Technologies used	Resources
	Precision agriculture	Use of sensors, drones, GIS data	Efficiency, sustainability

Appendix 2: Interviewee distribution

The distribution of local suppliers across the different initiatives is presented in Table 11 in a comprehensive manner. An 'X' indicates affiliation with the initiative, while an 'O' represents prior experience with the initiative, either through affiliation or discussions that did not result in further collaboration. To ensure anonymity, the numbering in Table 11 does not correspond to the lettering assigned to local suppliers and SFSC initiatives in the results section. The analysis of the distribution of local suppliers across the SFSC initiatives shows an even representation. This balance provides a strong basis for analysing perspectives and dynamics within these chains.

Table 11: Interviewee distribution

Local suppliers (not in order)	SFSC initiative 1	SFSC initiative 2	SFSC initiative 3
Local supplier 1	X	X	X
Local supplier 2	X	X	X
Local supplier 3	X	X	X
Local supplier 4	X		X
Local supplier 5	O		X
Local supplier 6		X	X
Local supplier 7		O	X
Local supplier 8		O	X
Local supplier 9	X		
Local supplier 10		X	
Local supplier 11			X

Appendix 3: Coding scheme

Table 12 outlines the coding scheme developed for the study, presenting key themes, definitions derived from the literature review, and representative quotes derived from the collected data.

Table 12: Coding scheme

Themes/ codes	Definition	Representative quotes
I: Information sharing		
Willingness to share information	"Willingness to share information with SC partners can be defined as a company's openness to sharing relevant information honestly and frequently and to making strategic and tactical data available to SC partners." (Zaheer & Trkman, 2017, p. 419)	"We're willing to share because the information is valuable, but they haven't asked for it."
Trust	"Trust is a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another." (Evans & Revelle, 2008, p. 1585)	"It's largely based on trust and the collaboration you have with each other. And I believe they treat me honestly."
Capabilities	"Zero-level capabilities refer to ordinary capabilities – the ability to maintain daily operations in the short term, whereas dynamic capabilities are considered as higher-level capabilities to sustain competitive advantages in the long term." (Song & Liao, 2018, p. 60)	"It's a big task, and I certainly can't do it myself. I would really need support from the initiative if they want that kind of information, because it's too complex."
Information sharing	"Information sharing means distributing useful information for systems, people or organizational units." (Lotfi et al., 2013, p. 300)	"We don't share the planning or the forecast of the supply we might receive with anyone. If it fails, we'll raise the issue and communicate it."
II: Willingness to share information		
Reciprocity	Reciprocity in information sharing context "means that A will be willing to share information so long as B also provides information of the same value in exchange." (Zaheer & Trkman, 2017, p. 421)	"Convincing farmers to participate in data analysis happens when they see the benefit. If they realize they can make money from it or that it adds value, they'll be more likely to join in."
III: Trust		
Transparency	"Refers to whether the acquisition process and the content of the information is clear or open." (Yuan et al., 2023, p. 15)	"We're happy with smaller initiatives that appreciate the farmer and allow for clear communication, rather than one-sided contracts with no transparency, like with the traditional food supply chain."

Communication	The communication frequency and the communication channels.	"The lines of communication are very short, which is really great. A quick phone call or a visit solves issues effectively."
Pricing (new code)	The pricing policies of SFSC initiatives. (Gardner, 1975)	"Farmers might get slightly less, but they are happier because they know well in advance, allowing them to better plan their staffing and harvests."
IV: Capabilities		
Data Analytical Capabilities	"Maintaining and developing routines required for using DA to develop business insights that is aligned with business needs and priorities." (Kakhki et al., 2022, p. 541)	"We use data-analysis mostly internal, for example, with the path registration, which helps us with staff planning."
Management competencies	"A set of motivations, personal, traits, abilities, knowledge and values necessary to improve management performance." (Gamarra et al., 2019, p. 1)	"Participating in the initiative is about spreading the risk, so you're not reliant on a single buyer. Plus, it allows you to set a different price for yourself compared to selling in bulk."
Marketing competencies	"Help managers understand various customer segments and their requirements and plan to meet the identified needs." (Mageto & Luke, 2020, p. 12)	"We're big supporters of word-of-mouth marketing, it's the most reliable, though it takes the longest."
Resource heterogeneity (new code)	Resource heterogeneity is the heterogeneous distribution, across firms, of "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness." (Barney, 1991, p. 101)	"We know what we bring to each other to achieve something. We're not ICT experts, and they're not farmers."
Maturity (new code)	"A measure to indicate how excellent business processes can perform." (Van Looy et al., 2012, p. 189)	"We currently have all the information we need but are open to exploring future possibilities, such as production capacities and inventory data, which would support the platform's growth."

Appendix 4: Interview guides

Interview guide local supplier

Part A: Introduction

Name:

Company name:

Consent for audio recording:

Objectives: The overarching aim of my research is to enhance the efficiency of the short food supply chains by fostering collaboration throughout the chain, thereby ensuring that local suppliers continue to receive fair prices. The specific objective of this interview is to gain insights into the collaborations between you and short food supply chain initiatives, and to understand the willingness to share information within these collaborations.

Definition SFSC initiative: SFSC initiatives facilitate direct B2B or B2C delivery of local products through a platform by connecting producers and consumers (Lankauskienė et al., 2022).

Part B: Information sharing in SFSCs

Warm-up questions:

1. Could you briefly describe your company and the short food supply chain initiatives you are involved in?
2. What is the sales share of these short food supply chain initiatives?
3. What do you hope to achieve by participating in the initiative?
4. What changes have you had to make in your business operations for it?

Information sharing:

Definition information sharing: "Information sharing means distributing useful information for systems, people or organizational units." (Lotfi et al., 2013, p. 300)

5. How do you communicate with the SFSC initiatives? How frequently do you communicate with these initiatives?
6. Do you collect specific information for the SFSC initiative and share it with them? What kind of information is this?
7. How and to what extent do you share information with the SFSC initiative? (regarding inventory, product, capacity, sustainability, strategy)

Willingness to share information:

Definition willingness to share information: “Willingness to share information with SC partners can be defined as a company’s openness to sharing relevant information honestly and frequently and to making strategic and tactical data available to SC partners.” (Zaheer & Trkman, 2017, p. 419)

8. How willing are you to share information with the SFSC initiative?
9. Is there any information that you would like to receive from the SFSC initiatives?

Definition reciprocity: Reciprocity in information sharing context “means that A will be willing to share information so long as B also provides information of the same value in exchange.” (Zaheer & Trkman, 2017, p. 421)

10. Do you generally feel that the SFSC initiatives treat you fairly?
11. Do you believe that the policy of the SFSC initiative regarding their dealings with local suppliers is fair?

Trust:

Definition trust: "Trust is a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another." (Evans & Revelle, 2008, p. 1585)

12. How do the SFSC initiatives handle the data you share with them? Do you feel that when you share data with the SFSC initiative, they fulfil their promises regarding how they manage it?
13. How has the SFSC initiative assisted you when you encountered problems?
14. Do you think the SFSC initiative considers your well-being as well as their own interests when making decisions?
15. Has the SFSC initiative always been trustworthy towards you?
16. Do you believe that the services provided by the SFSC initiative are predictable?

Capabilities:

Data Analytical Capabilities:

Definition Data Analytical Capabilities: "Maintaining and developing routines required for using DA to develop business insights that is aligned with business needs and priorities." (Kakhki et al., 2022, p. 541)

17. What are the purposes for collecting data and how do you use it (monitoring, analyses, dashboards)?
18. Do you ever combine information from multiple sources for your decision-making?
19. Do you ever visualise data using tools like dashboards to help customers or partners better understand complex information? Can you explain how these dashboards facilitate the easier use of information for analysis and improvement?
20. What systems do you use to maintain this data?
21. How is information shared within your organisation, for example, via phones and/or computers?

Management competencies:

Definition management competencies: "A set of motivations, personal, traits, abilities, knowledge and values necessary to improve management performance." (Gamarra et al., 2019, p. 1)

22. What risks do you, as a local supplier, foresee? And how do you manage these?
23. How do you collaborate with other actors?

Marketing competencies:

Definition marketing competencies: "Help managers understand various customer segments and their requirements and plan to meet the identified needs." (Mageto & Luke, 2020, p. 12)

24. What actions do you take in terms of marketing?
25. How do you analyse the market and customer desires? How does this provide insights into competition and pricing? How does this lead to new strategies for sales channels?

Interview guide SFSC initiative

Part A: Introduction

Name:

Role in company:

Consent for audio recording:

Objectives: The overarching aim of my research is to enhance the efficiency of the short food supply chains by fostering collaboration throughout the chain, thereby ensuring that local suppliers continue to receive fair prices. The specific objective of this interview is to gain insights into the collaborations between you and short food supply chain initiatives, and to understand the willingness to share information within these collaborations.

Definition SFSC initiative: SFSC initiatives facilitate direct B2B or B2C delivery of local products through a platform by connecting producers and consumers (Lankauskienė et al., 2022).

Part B: Information sharing in SFSCs

Warm-up questions regarding collaboration:

1. Could you briefly describe the short food supply chain initiative you are involved with, detail your role within this initiative, and explain how the initiative has evolved over time?
2. What have been and continue to be the major obstacles to growth for your short food supply chain initiative?
3. How does the process of recruiting local suppliers for your platform work?

Information sharing:

Definition information sharing: "Information sharing means distributing useful information for systems, people or organizational units." (Lotfi et al., 2013, p. 300)

4. How and to what extent do local suppliers share information with you? (regarding inventory, product, capacity, sustainability, strategy)
5. How do you collect data from the local suppliers?
6. Do you collect specific information for the local suppliers and share it with them? What kind of information is this?

Willingness to share information:

Definition willingness to share information: “Willingness to share information with SC partners can be defined as a company’s openness to sharing relevant information honestly and frequently and to making strategic and tactical data available to SC partners.” (Zaheer & Trkman, 2017, p. 419)

7. Is there any information that you would like to receive from the local suppliers?
8. How willing are local suppliers to share information with your initiative, and do you notice any variations in their willingness?
9. How have you increased the willingness of local suppliers to share information with your initiative?

Definition reciprocity: Reciprocity in information sharing context “means that A will be willing to share information so long as B also provides information of the same value in exchange.” (Zaheer & Trkman, 2017, p. 421)

10. How fair do you believe your treatment of local suppliers is?

Trust:

Definition trust: "Trust is a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another." (Evans & Revelle, 2008, p. 1585)

11. How do you assist local suppliers when they encounter problems?
12. How do you handle the data that local suppliers share with you?
13. How do you consider the well-being of local suppliers when making decisions?
14. What are the your policies regarding pricing?
15. How much trust do local suppliers have in your initiative, and do you notice any variations in their trust levels? What role does trust play regarding information sharing within your initiative?

Capabilities:

Data Analytical Capabilities:

Definition Data Analytical Capabilities: "Maintaining and developing routines required for using DA to develop business insights that is aligned with business needs and priorities." (Kakhki et al., 2022, p. 541)

16. What are the purposes for collecting data and how do you use it (monitoring, analyses, dashboards)?
17. What systems do you use to maintain this data?
18. How would you describe the data analytical capabilities of local suppliers in your initiative? Do you notice any variations in these capabilities among them? What role does this play in information sharing?
19. What kind of support do you offer to enhance these capabilities?

Management competencies:

Definition management competencies: "A set of motivations, personal, traits, abilities, knowledge and values necessary to improve management performance." (Gamarra et al., 2019, p. 1)

20. How would you describe the management competencies of local suppliers in your initiative? Do you notice any variations in these competencies among them? What role does this play in information sharing?
21. What kind of support do you offer to enhance the competencies?
22. How do you collaborate with other short food supply chain initiatives?
23. How does your initiative measure the satisfaction of both suppliers and end-users?

Marketing competencies:

Definition marketing competencies: "Help managers understand various customer segments and their requirements and plan to meet the identified needs." (Mageto & Luke, 2020, p. 12)

24. How would you describe the marketing competencies of local suppliers in your initiative? Do you notice any variations in these competencies among them? What role does this play in information sharing?
25. What kind of support do you offer to enhance the competencies?
26. What actions do you take in terms of marketing?
27. How do you analyse the market and customer desires? How does this provide insights into competition and pricing? How does this lead to new strategies for sales channels?

Interview guide government agency

Part A: Introduction

Name:

Company name:

Consent for audio recording:

Objectives: The overarching aim of my research is to enhance the efficiency of the short food supply chains by fostering collaboration throughout the chain, thereby ensuring that local suppliers continue to receive fair prices. The specific objective of this interview is to gain insights into the collaborations between you and short food supply chain initiatives, and to understand the willingness to share information within these collaborations.

Definition SFSC initiative: SFSC initiatives facilitate direct B2B or B2C delivery of local products through a platform by connecting producers and consumers (Lankauskienė et al., 2022).

Part B: Information sharing in SFSCs

Warm-up questions:

1. Could you briefly describe your role in the government agency and the role within the short food supply chains?
2. What is your vision for the development of short food chains and short food chain initiatives in the Netherlands?
3. What are the main challenges that local suppliers face in short food chain initiatives?

Information sharing:

Definition information sharing: "Information sharing means distributing useful information for systems, people or organizational units." (Lotfi et al., 2013, p. 300)

4. How and to what extent do local suppliers share information with the SFSC initiative? (regarding inventory, product, capacity, sustainability, strategy)

Willingness to share information:

Definition willingness to share information: “Willingness to share information with SC partners can be defined as a company’s openness to sharing relevant information honestly and frequently

and to making strategic and tactical data available to SC partners." (Zaheer & Trkman, 2017, p. 419)

5. How willing do you believe local suppliers are to share information with short food chain initiatives?
6. How could the willingness of local suppliers to share data with short food chain initiatives be increased, and what influence does the government have on this?

Definition reciprocity: Reciprocity in information sharing context "means that A will be willing to share information so long as B also provides information of the same value in exchange." (Zaheer & Trkman, 2017, p. 421)

7. Do you generally feel that the SFSC initiatives treat local suppliers fairly?
8. Do you believe that the policy of the SFSC initiative regarding their dealings with local suppliers is fair?

Trust:

Definition trust: "Trust is a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another." (Evans & Revelle, 2008, p. 1585)

9. To what extent do you think local suppliers trust the promises and agreements made by short food chain initiatives?
10. How do you think the transparency and fairness of short food chain initiatives influence their relationship with local suppliers?
11. Do you believe local suppliers experience predictability in the way short food supply chain initiatives support them? And in the way the government supports them?
12. How can you increase local suppliers' trust in short food supply chain initiatives?

Capabilities:

Data Analytical Capabilities:

Definition Data Analytical Capabilities: "Maintaining and developing routines required for using DA to develop business insights that is aligned with business needs and priorities." (Kakhki et al., 2022, p. 541)

13. How do you assess the data analytical capabilities of local suppliers?

14. How does the government view the role of technology in improving the communication and information processes of local suppliers in relation to short food supply chain initiatives?
15. What can the government do to enhance the data analytical capabilities of local suppliers?

Management competencies:

Definition management competencies: "A set of motivations, personal, traits, abilities, knowledge and values necessary to improve management performance." (Gamarra et al., 2019, p. 1)

16. How do you assess the management competencies of local suppliers?
17. What can you do to enhance the management competencies of local suppliers?

Marketing competencies:

Definition marketing competencies: "Help managers understand various customer segments and their requirements and plan to meet the identified needs." (Mageto & Luke, 2020, p. 12)

18. How do you assess the marketing competencies of local suppliers?
19. What can you do to enhance the marketing competencies of local suppliers?

Appendix 5: Results ATLAS.ti

This appendix provides an overview of the co-occurrence, code-document, and sentiment analyses used in the study. A co-occurrence analysis is particularly effective for exploring the interplay between constructs and identifying associations, as it allows researchers to examine the strength of the relationship of codes (Stewart, 2024), as shown in Table 13. The strongest co-occurrence with Information Sharing is with Trust (0.58), followed by Willingness to Share Information (0.26), and Capabilities (0.25). Another notable co-occurrence is between Trust and Willingness to Share Information (0.40).

Table 13: Co-occurrence analysis ATLAS.ti of all themes

	Capabilities	Information Sharing	Trust	Willingness to Share Information
Capabilities		0,25	0,27	0,20
Information Sharing	0,25		0,58	0,26
Trust	0,27	0,58		0,40
Willingness to Share Information	0,20	0,26	0,40	

Table 14 demonstrates the sentiments of all themes; however, nothing new can be concluded as it mirrors the distribution found in the co-occurrence analysis of the themes. Sentiment analysis is a feature in ATLAS.ti that evaluates the emotional tone of text data (Kalpokas, 2024).

Table 14: Co-occurrence analysis ATLAS.ti of the sentiments all themes

	Capabilities: Negative	Capabilities: Positive	Information Sharing: Negative	Information Sharing: Positive	Trust: Negative	Trust: Positive	Willingness to Share Information: Negative	Willingness to Share Information: Positive
Capabilities: Negative		0,06	0,15	0,04	0,20	0,03	0,14	0,03
Capabilities: Positive	0,06		0,08	0,24	0,05	0,26	0,03	0,21
Information Sharing: Negative	0,15	0,08		0,08	0,43	0,09	0,18	0,04
Information Sharing: Positive	0,04	0,24	0,08		0,03	0,57	0,02	0,30
Trust: Negative	0,20	0,05	0,43	0,03		0,07	0,29	0,05
Trust: Positive	0,03	0,26	0,09	0,57	0,07		0,06	0,43
Willingness to Share Information: Negative	0,14	0,03	0,18	0,02	0,29	0,06		0,07
Willingness to Share Information: Positive	0,03	0,21	0,04	0,30	0,05	0,43	0,07	

Table 15 illustrates the distribution of the sentiments for the willingness to share information across the local suppliers, as a code-document analysis. By integrating sentiment analysis with code-document analysis, which compares the sentiments per interviewee, a deeper understanding is gained of the contextual elements in play. Overall, negative mentions of the willingness to share information (54.98%) slightly outweigh positive mentions (45.02%). However, the variation underscores the need to comprehend the conditions under which willingness to share is high or low.

Table 15: Code-document analysis with sentiment analysis Willingness to Share information

	Willingness to Share Information: Negative 351	Willingness to Share Information: Positive 334	Totals
2: Transcript interview Local supplier A 111	57,14%	42,86%	100,00%
3: Transcript interview Local supplier B 116	48,94%	51,06%	100,00%
4: Transcript interview Local supplier C 89	37,50%	62,50%	100,00%
5: Transcript interview Local supplier D 180	72,34%	27,66%	100,00%
6: Transcript interview Local supplier E 107	55,56%	44,44%	100,00%
7: Transcript interview Local supplier F 129	69,57%	30,43%	100,00%
8: Transcript interview Local supplier G 114	44,74%	55,26%	100,00%
9: Transcript interview Local supplier H 126	72,09%	27,91%	100,00%
10: Transcript interview Local supplier I 211	51,43%	48,57%	100,00%
11: Transcript interview Local supplier J 114	48,65%	51,35%	100,00%
12: Transcript interview Local supplier K 157	46,81%	53,19%	100,00%
Totals	54,98%	45,02%	100,00%

Table 16 represents a code-document analysis, comparing the frequency with which trust is coded as positive or negative in the sentiment analysis across different local suppliers. The results show variability in trust perceptions. For example, Local Supplier F exhibits the highest percentage of negative trust mentions at 66.67%, while Local Supplier C has the highest percentage of positive trust mentions at 65.00%. Overall, positive trust (52.15%) slightly outweighs negative trust (47.85%), but the distribution is far from consistent across suppliers. This indicates that trust is perceived and discussed differently depending on the specific supplier, highlighting the need for tailored approaches to addressing trust issues in SFSC initiatives.

Table 16: Code-document analysis with sentiment analysis Trust

	Trust: Negative 135	Trust: Positive 183	Totals
2: Transcript interview Local supplier A 111	60,00%	40,00%	100,00%
3: Transcript interview Local supplier B 116	56,25%	43,75%	100,00%
4: Transcript interview Local supplier C 89	35,00%	65,00%	100,00%
5: Transcript interview Local supplier D 180	54,55%	45,45%	100,00%
6: Transcript interview Local supplier E 107	44,44%	55,56%	100,00%
7: Transcript interview Local supplier F 129	66,67%	33,33%	100,00%
8: Transcript interview Local supplier G 114	36,00%	64,00%	100,00%
9: Transcript interview Local supplier H 126	41,18%	58,82%	100,00%
10: Transcript interview Local supplier I 211	42,86%	57,14%	100,00%
11: Transcript interview Local supplier J 114	45,45%	54,55%	100,00%
12: Transcript interview Local supplier K 157	44,00%	56,00%	100,00%
Totals	47,85%	52,15%	100,00%

Table 17 represents a code-document analysis comparing the frequency with which capabilities are coded as positive or negative in the sentiment analysis across different local suppliers. The results reveal again high variability, in how capabilities are perceived. For instance, Local Supplier D exhibits the highest percentage of negative mentions at 75.00%, indicating significant challenges in their perceived capabilities. In contrast, Local Supplier C and Local Supplier G have the highest percentage of positive mentions, both at 77.78%, reflecting stronger confidence in their abilities. Overall, negative mentions of capabilities (52.17%) slightly outweigh positive mentions (47.83%), indicating a tendency toward identifying challenges or limitations. However, the distribution of perceptions varies considerably between suppliers, highlighting the diverse experiences and self-assessments within the network. This variation underscores the importance of tailored strategies to enhance the capabilities of local suppliers.

Table 17: Code-document analysis with sentiment analysis Capabilities

	Capabilities: Negative 84	Capabilities: Positive 113	Totals
2: Transcript interview Local supplier A 111	66,67%	33,33%	100,00%
3: Transcript interview Local supplier B 116	41,67%	58,33%	100,00%
4: Transcript interview Local supplier C 89	22,22%	77,78%	100,00%
5: Transcript interview Local supplier D 180	75,00%	25,00%	100,00%
6: Transcript interview Local supplier E 107	63,64%	36,36%	100,00%
7: Transcript interview Local supplier F 129	62,50%	37,50%	100,00%
8: Transcript interview Local supplier G 114	22,22%	77,78%	100,00%
9: Transcript interview Local supplier H 126	66,67%	33,33%	100,00%
10: Transcript interview Local supplier I 211	57,14%	42,86%	100,00%
11: Transcript interview Local supplier J 114	50,00%	50,00%	100,00%
12: Transcript interview Local supplier K 157	46,15%	53,85%	100,00%
Totals	52,17%	47,83%	100,00%

Appendix 6: Theoretical contribution analysis

This appendix discussed the novel contribution to the literature on SFSCs this study makes, by integrating three foundational theories; RBV, SET, and ANT. Despite the growing body of research on SFSCs, a review of existing academic resources in the global database, WorldCat, reveals a notable gap in explicitly linking these theories to SFSC contexts. WorldCat is the most extensive global database containing information on library collections (OCLC, 2024), but while 641 publications on SFSCs were identified, of which 133 were peer-reviewed, none applied RBV, SET, or ANT, see Table 18. This indicates a significant underexploration of theoretical perspectives that could enrich understanding of the mechanisms underlying SFSC operations, relationships, and networks.

Table 18: Theoretical contribution analysis

Theories	**Worldcat library (searching in libraries worldwide)**	**All results**	**Peer-reviewed results**
	kw:("SFSC") OR kw:("Short Food Supply Chain")	641	133
RBV	(kw:("SFSC") OR kw:("Short Food Supply Chain")) AND (kw:("RBV") OR kw:("Resource-Based View") OR kw:("RBT") OR kw:("Resource-Based Theory"))	0	0
SET	(kw:("SFSC") OR kw:("Short Food Supply Chain")) AND kw:("Social Exchange Theory")	0	0
ANT	(kw:("SFSC") OR kw:("Short Food Supply Chain")) AND (kw:("ANT") OR kw:("Actor-Network Theory"))	0	0

By employing these three complementary theoretical frameworks, this study addresses this gap. RBV offers insights into the strategic resource allocation and capabilities required for SFSCs to thrive. SET sheds light on the relational dynamics, trust, and reciprocity critical to collaboration among actors. ANT enables a deeper exploration of how both human and non-human entities, such as technology and infrastructure, coalesce to form robust SFSC networks. Together, these theories provide a multidimensional lens to better understand the complexities and nuances of SFSCs, offering a theoretical foundation that has not been previously established in the field.

Appendix 7: CPFR implementation

This appendix provides insights into the key differences between the current supply chain methods and CPFR, in the case from Veelenturf et al. (2001), see Table 19. It helps SFSC practitioners to better understand the objectives and advantages of CPFR. Additionally, the process steps of CPFR detailed in Figure 5 can help comprehend its dynamics, implement CPFR fully, or apply parts of its framework.

Table 19: Key differences between current SC methods and CPFR (in the case from Veelenturf et al., 2001). Source: (Veelenturf et al., 2001)

Current Supply Chain Methods (e.g. CRP)		CPFR
Separate plans for Supplier, Manufacturer and Retailer	⟷	Shared plans developed jointly for Supplier and Manufacturer, Manufacturer and Retailer, and Supplier, Manufacturer and Retailer in a three-way implementation
Order Generation based in history (Shipments, DC level sales, or POS data)	⟷	Order Generation based in forecast, using DC/POS data, promotion planning and other marketing activities
Reactive	⟷	Proactive
Focused on execution	⟷	Focused on planning
Limited to Inventory and Logistics point of view	⟷	Includes Inventory, Logistics, Sales, Marketing, Procurement and Planning point of view
Goal is to cut company costs	⟷	Goal is trading partners' revenue growth
Related to inventory management	⟷	More related to category management
Works on efficient inventory replenishment only	⟷	Works on promotion, product introduction, inventory levels and replenishment all the way to the shelf effectiveness
Several forecasts for Supplier, Manufacturer and Retailer	⟷	Single shared sales forecast based on collaborative process

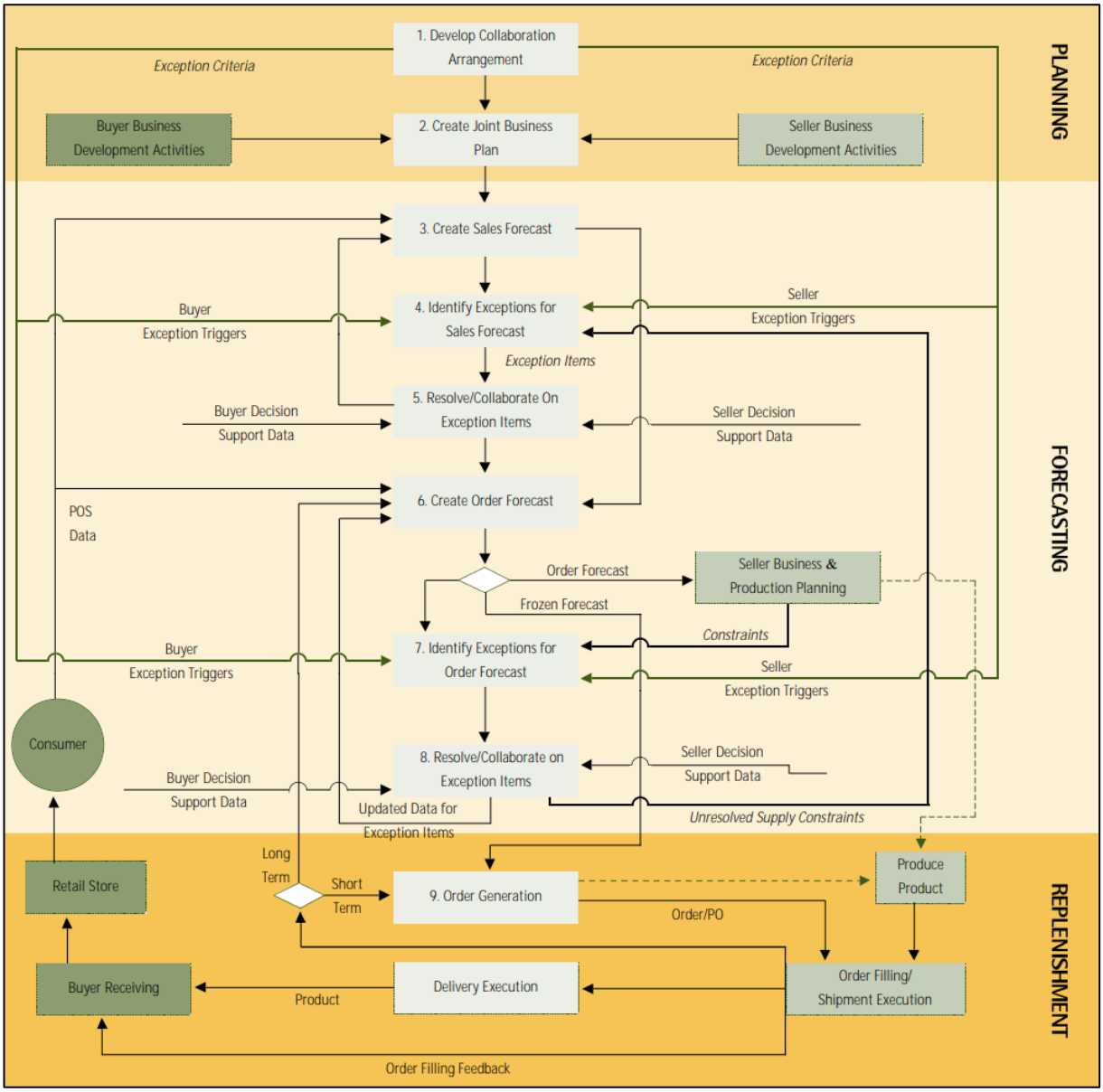

Figure 5: CPFR process steps. Source: (Veelenturf et al., 2001)