UNIVERSITY OF RIJEKA

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THE IMPACT OF COLLABORATION AND TRUST ON PERFORMANCE IN THE ORGANIC FOOD SUPPLY CHAIN

DOCTORAL THESIS

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Co-supervisor: Associate Professor Helga Pavlić Skender, PhD

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SVEUČILIŠTE U RIJECI
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UTJECAJ SURADNJE I POVJERENJA NA USPJEŠNOST OPSKRBNIH LANACA EKOLOŠKIH POLJOPRIVREDNO-PREHRAMBENIH PROIZVODA

DOKTORSKI RAD

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SUMMARY

The subject of research for this doctoral dissertation is organic agri-food supply chains (OAFSC), specifically examining how collaboration and trust among supply chain (SC) members influence the success of the OAFSC.

One of the objectives of every SC is for companies not to be viewed individually but as members of a competitive network in which multiple companies are involved in value creation. This goal can only be achieved through collaboration among all SC members. Due to the insufficient exploration of the relationships within the afgri-food supply chain (AFSC), especially OAFSCs, the main aim of this dissertation is to conduct a more detailed examination and analysis of these SCs. It aims to investigate the perceptions of organic agri-food (OAF) producers and retailers about the importance of collaboration and trust for their market performance and the overall success of OAFSC.

The dissertation is divided into four separate yet interconnected research papers. The first two papers identify, assess, and structure research focused on "collaboration" (C), "trust" (T), and "performance" (P) in agri-food supply chains (AFSCs). They reveal the intellectual foundation of how C, T, and P are discussed in the field of agri-food supply chain management (AFSCM) and how they have evolved over time. The aim is to synthesize research published over an 18-year period (from 2003 to early 2020). The results of the analyses indicate that this topic still does not receive sufficient research attention despite the importance of AFSCs for many countries. Research tends to focus more on trust than on performance and/or collaboration. The interrelationship and interdependence of C, T, and P in the context of attitudes of individual primary agri-food producers (PAFPs) toward their downstream partners in the chain is an insufficiently explored area. Furthermore, a significantly smaller number of papers elaborate on research in the context of OAFSCs, highlighting the need for more studies on these chains, given the increasing significance of organic agri-food production today.

Based on the findings obtained in the first two papers and the fact that there is a lack of empirical research on specific activities and relationships formed within OAFSCs, the main goal of the primary research was to examine the perceptions of OAF producers and retailers regarding the importance of collaboration and trust for their performance in OFSCs. Therefore, preliminary research was conducted through in-depth interviews on a sample of OAF producers and retailers in the Croatian organic food market.

The results showed that the perceptions of OAF producers regarding the impact of collaboration and trust on overall performance vary depending on the duration of their

collaboration with retailers, the type of products, and the percentage of total sales sold through retailers. As for retailers, their attitudes also differ depending on whether they are large general merchandise retailers, larger specialized retailers, or small and medium-sized retailers of OAF products.

The fourth paper is based on empirical research conducted on a sample of 81 OAF producers and 22 retailers who sell OAF products in their assortment. The survey was conducted on the territory of the Republic of Croatia. The perceptions of OAF producers and retailers regarding the impact of collaboration (C) and trust (T) on performance (P) were analyzed using a unique questionnaire designed to test the conceptual research model and proposed hypotheses. The hypotheses were tested using the partial least squares structural equation modeling (PLS-SEM) method. The results showed a positive and significant impact of collaboration on trust and a positive statistically significant impact of trust on performance for both producers and retailers. Analyzing specific collaboration indicators, the results revealed some differences in the perceptions of producers compared to retailers. OAF producers believe that information exchange did not significantly affect trust in retailers because trust is mainly built on previous experiences of quality and fair collaboration. On the other hand, retailers consider information exchange, especially quality communication, as an important precursor to trust. It was not confirmed that there are differences between OAFSCs (fresh OAF products or processed products) concerning the type of product distributed through these SCs.

The findings of this research show that even though the Croatian organic food market is considered new and still underdeveloped, OAFSCs in Croatia are characterized by a high level of trust from the perspective of both producers and retailers. This trust is based on quality past collaborations that aim for long-term business relationships. Furthermore, high-quality collaboration and a high level of trust have a positive impact on improving the financial and non-financial performance indicators of individual members and the entire SC as a whole.

The results of the dissertation contribute to the existing knowledge in the field from both theoretical and practical perspectives and offer recommendations for potential improvements in managing relationships within the AFSC, which is inherently specific. Particularly, the findings can serve as an information base for all stakeholders in the OAFSCs encouraging them to engage in activities that strengthen trust and collaboration as prerequisite for increasing the performance of OAFSCs.

Keywords: *agri-food supply chain management; organic agri-food supply chain; organic agri-food producers; retailers; relationships quality; collaboration; trust; performance; qualitative and quantitative research; Croatia*

SAŽETAK

Predmet istraživanja ove doktorske disertacije su opskrbni lanci ekoloških poljoprivredno-prehrambenih proizvoda *(hrv.* opskrbni lanci EPPP; *engl.* organic agri-food supply chain - OAFSC), odnosno način na koji suradnja i povjerenje među članovima opskrbnog lanca utječu na uspješnost opskrbnog lanca EPPP.

Jedan od ciljeva svakog opskrbnog lanca je da se tvrtke ne promatraju individualno, već kao članice konkurentne mreže u kojoj je više tvrtki uključeno u stvaranje vrijednosti. Taj se cilj može postići samo kroz suradnju svih sudionika u opskrbnom lancu. Zbog nedovoljne istraženosti samih odnosa u opskrbnom lancu poljoprivredno-prehrambenih proizvoda, a posebice opskrbnih lanaca EPPP, glavni cilj rada je upravo detaljnije razmatranje i analiziranje ovih opskrbnih lanaca odnosno ispitati percepcije proizvođača i trgovaca na malo EPPP o važnosti suradnje i povjerenja za njihov nastup na tržištu i sveukupnu uspješnost opskrbnih lanaca EPPP.

Disertacija je podijeljena u četiri zasebna i međusobno povezana znanstvena rada. Prva dva rada identificiraju, ocjenjuju i strukturiraju istraživanja koja se fokusiraju na "suradnju" (*engl.* collaboration (C)), "povjerenje" (*engl.* trust (T)) i "uspješnost" (*engl.* performance (P)) u lancima opskrbe poljoprivredno-prehrambenim proizvodima, otkrivaju intelektualnu osnovu, kako se raspravlja o C, T i P u području upravljanja lancima opskrbe poljoprivredno-prehrambenim proizvodima i kako su se razvijali tijekom vremena. Cilj im je sintetizirati istraživanja objavljena u razdoblju od 18 godina (od 2003. do početka 2020.) Rezultati provedenih analiza ukazuju da se ovoj temi još uvijek ne pridaje dovoljna istraživačka pozornost unatoč važnosti lanca opskrbe poljoprivredno-prehrambenim proizvodima za mnoge zemlje. Istraživanja se više usredotočuje na povjerenje nego na uspješnost i/ili "suradnju". Povezanost i međuovisnost C, T i P u odnosu još je nedovoljno istraženo područje s fokusom na stavove individualne percepcije primarnog poljoprivredno-prehrambenog proizvođača (*engl.* primary agri-food producer - PAFP) u odnosu na njegove nizvodne partnere u lancu. Nadalje, otkriven je znatno manji broj radova u kojima se elaborira istraživanje odnosa u opskrbnim lancima EPPP, što ukazuje na potrebu povećanja broja studija o tim lancima, s obzirom na to da ekološka poljoprivredno-prehrambena proizvodnja danas dobiva sve veći značaj.

Shodno nalazima dobivenim u prva dva rada i činjenice da nedostaje empirijskih istraživanja specifičnih aktivnosti i odnosa koji se formiraju unutar opskrbnih lanaca organske hrane, u sljedećoj fazi istraživanja glavni cilj bio je ispitati percepcije proizvođača i trgovaca

na malo EPPP o važnosti suradnje i povjerenja za njihov nastup u opskrbnim lancima EPPP. Tako je putem dubinskih intervjua napravljeno preliminarno istraživanje na uzorku proizvođača i trgovaca EPPP na hrvatskom tržištu ekološke hrane. Rezultati su pokazali da se percepcije proizvođača EPPP o utjecaju suradnje i povjerenja na sveukupnu uspješnost razlikuju ovisno o duljini suradnje s trgovcima, vrsti proizvoda, i postotku ukupne prodaje koju prodaju putem trgovaca. Što se tiče trgovaca stavovi se također razlikuju s obzirom radi li se o velikim trgovcima mješovite robe, većim specijaliziranim trgovcima ili malim i srednjim trgovcima EPPP.

Četvrti rad temelji se na empirijskim istraživanjima provedenima na uzorku od 81 proizvođača EPPP i 22 trgovca na malo koji u svom asortimanu prodaju i EPPP. Anketiranje je provedeno na području Republike Hrvatske (RH). Percepcije proizvođača i trgovaca namalo EPPP o utjecaju C i T na P su analizirane temeljem jedinstvenog anketnog upitnika koji je osmišljen s ciljem testiranja postavljanog konceptualnog istraživačkog modela i predloženih hipoteza. Hipoteze su testirane metodom modeliranja strukturnih jednadžbi primjenom metode parcijalnih najmanjih kvadrata (PLS-SEM). Rezultati su pokazali pozitivan i značajan utjecaj suradnje na povjerenje te pozitivan statistički značajan utjecaj povjerenja na uspješnost i kod proizvođač i trgovaca na malo. Analizirajući pojedine pokazatelje suradnje rezultati su pokazali neke razlike u percepciji proizvođača u odnosu na trgovce. Proizvođači EPPP smatraju da razmjena informacija nije bitno utjecala na povjerenje u trgovce, jer se povjerenje uglavnom gradi na prethodnom iskustvu kvalitetne i poštene suradnje. S druge strane trgovci na malo razmjenu informacija te osobito kvalitetnu komunikaciju smatraju važnim prethodnikom povjerenje. Nije potvrđeno da postoje razlike između opskrbnih lanaca EPPP s obzirom na vrstu proizvoda koja se plasira navedenim opskrbnim lancem (svježi EPPP ili prerađevine).

Nalazi ovog istraživanja pokazali su da iako hrvatsko tržište EPPP spada u nova i još nedovoljno razvijena tržišta, opskrbne lance EPPP u Hrvatskoj karakterizira visoka razina povjerenja, sa stajališta proizvođača i trgovaca na malo, koja se temelji na kvalitetnoj prošloj suradnji koja teži dugoročnim poslovnim odnosim. Također, kvalitetna suradnja i visoka razina povjerenja pozitivno utječe na poboljšanje financijskih i nefinancijskih pokazatelja uspješnosti članova pojedinačno, ali i cijelog lanca opskrbe.

Rezultati disertacije doprinose postojećem znanju u području istraživanja iz teorijske i aplikativne perspektive i nude preporuke za moguća poboljšanja u upravljanju odnosima unutar opskrbnog lanca EPPP, koji je sam po sebi specifičan. Osobito, rezultati mogu poslužiti kao informacijska baza za sve dionike opskrbnih lanaca EPPP potičući ih da sudjeluju u

aktivnostima koje će ojačati povjerenje i suradnju kao preduvjet za povećanje uspješnosti opskrbnih lanaca EPPP.

Ključne riječi: *upravljanje opskrbnim lancem poljoprivredno-prehrambenih proizvoda; opskrbni lanac ekoloških poljoprivredno-prehrambenih proizvoda; proizvođači i trgovci ekoloških poljoprivredno-prehrambenih proizvoda; kvaliteta odnosa; suradnja; povjerenje; uspješnost; kvalitativno i kvantitativno istraživanje; Hrvatska*

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1. INTRODUCTION

1.1 Field and Research Subject

Organic production

In the last two decades, both globally and in Croatia, there has been an increased interest in organic agricultural production, and this is the result of several factors. The most important among them are (Rodale, 2011): a large area of uncultivated land suitable for organic production, low pollution in the ecological system, increased consumer concern for health, and the growing importance of renewable resources in the global environment. New consumer trends and increased demand for organic food products, whose production is environmentally friendly, are also reasons for the expanded growth of organic agriculture. However, these mentioned reasons are just the starting points for the quality development of organic agriculture. The most significant factor in the development of organic agriculture is considered to be the market, where agricultural enterprises as fundamental units in the market of organic food products face a range of issues such as legal regulations, education about organic farming methods and food production, higher costs, and narrowed distribution channels (Renko and Bošnjak, 2009).

The European Union's Common Agricultural Policy (CAP), adapted through successive reforms to address new challenges facing European agriculture, also supports an open single market for agricultural food products within the EU. This ensures affordable prices, maintains some of the highest global standards for safety and environmental protection, and preserves the vitality of rural communities. However, while agricultural policy is common, each member state has its own national specifics, needs, and objectives. Croatia, too, has incorporated some important goals for the development of the organic agricultural food product market in its Strategic Plan for the Republic of Croatia within the CAP framework for the period 2023-2027 (APPRRR - CAP 2023-2027): to enhance horizontal and vertical connections among producers, ensure high-quality food, increase the competitiveness of agricultural production, focus more on the market, strengthen the market position through producer associations, and develop short food supply chains.

Statistical data on organic production

On a global and European level, there is a trend of increasing land area dedicated to organic production. According to (FiBL, 2022), the global coverage of land under organic

production has risen to 74.9 million hectares, with Europe accounting for 23% of that. Croatia has also experienced a significant trend of growth in land area dedicated to organic production. However, even though the percentage of land under organic production in the total agricultural land in Croatia was 8.26% in 2021 (Ministry of Agriculture), which is close to the EU average of 9.2% (FiBL 2022), Croatia still ranks 20th in the EU and 25th in Europe when measured by the extent of organic agricultural land.

In Europe, there are over 420,000 organic producers (with around 350,000 in EU countries) and approximately 85,000 processors (78,000 in the EU). Italy has the highest number of organic producers in Europe (17%), followed by France (13%) and Turkey (13%). Italy also leads in the number of processors (around 27%), followed by France (23%) and Germany (20%) (FiBL 2022). While the number of organic producers in Croatia has significantly increased in the last five years (ranking 14th in Europe in terms of the number of organic producers), Croatia lags behind other European countries when it comes to processors and ranks 20th (FiBL 2022). According to data from the Ministry of Agriculture of Croatia, in 2021, there were 6,024 organic agricultural producers in Croatia and only 378 processors.

In the Republic of Croatia, the majority of farms engaged in organic production are small family farms (known as OPGs), which also face numerous challenges. Research results (Petljak, 2013; Gajdić *et al.*, 2018) indicate that most of these farms are smaller than 5 hectares, with fruit farming being the most prevalent activity. Organic production requires more resources, especially human resources, and is highly dependent on seasons and weather conditions. Organic products also have a shorter shelf life and require specific storage and distribution conditions. These characteristics contribute to high levels of uncertainty and risk regarding market prices and quantities when entering into contracts with retailers. Accessing the market is more challenging, particularly due to competition from imported organic products.

The organic products market and distribution channels in Croatia

The European market for organic products is the second largest in the world, accounting for over 43% of global revenue in 2020. However, it is not homogeneous due to differences in the income levels of individual countries. Accordingly, the average per capita consumption of organic products in the EU is four times higher than in Croatia, averaging over 100 euros per person. In Denmark and Switzerland, per capita spending can exceed 350 euros (FiBL 2022). After the United States, the EU is the second-largest market for organic agricultural products, with a retail value of around 44.8 billion euros. Germany is the largest market in Europe and the second-largest globally.

As a percentage of the total market share, the highest levels have been reached in Denmark at 13%, Austria and Switzerland at approximately 11%, and Luxembourg and Sweden with 9% or more organic products. Such market share occupancy can be explained by a high standard of living and a high level of environmental awareness among the population in these countries. In Croatia, this share is around 2.2% (FiBL 2022). In 2018, the total retail value of organic agricultural products in Croatia was approximately 99 million euros, with per capita spending at around 24 euros (FiBL 2022). This places Croatia 19th in terms of organic retail sales in Europe. The consumption structure of organic agricultural-food products is primarily led by fruits and cereals. The Croatian organic products market is still underdeveloped and significantly lags behind Western European countries. This is primarily due to two factors: 1. Consumer Awareness - First and foremost, there is a lack of consumer awareness. Despite a growing desire for organic products, many consumers in Croatia are not well-informed about the benefits and availability of these products. Secondly, there is a significant lack of developed distribution channels in the retail sector, which makes it challenging to effectively reach consumers with organic products (Gajdić *et al.*, 2018; Gajdić *et al.*, 2021). Canavari *et al.* (2007) have highlighted the inefficiency of the supply chain for organic food products as one of the major issues. In developed European countries, the primary distribution channels for organic products are indirect, with most organic food products available in supermarket chains, followed by specialized stores (Denver and Christensen, 2007; Sanders *et al*., 2016; FiBL 2022). In contrast, in Croatia, the distribution channels for organic agricultural-food products are mostly associated with terms like "local market," "alternative market," "direct sales," and "short supply chains." This is because a significant portion of organic products in Croatia is still sold directly, with a smaller percentage of domestic producers distributing their products through retail (Petljak, 2013; Gajdić *et al.*, 2018; Gajdić *et al.*, 2021).

Research by Essoussi and Zahaf (2008) has shown that small communities tend to support local producers of OAF products for three main reasons: (1) limited availability of organic food products in supermarkets in small communities, (2) greater consumer trust in local farmers compared to retailers, and (3) direct marketing and distribution of food products from local suppliers to consumers.

In Croatia, most domestic OAF producers primarily sell their products through direct sales, partly due to competition and the dominance of these distribution methods.

The reason for this is the limited ability of farmers to operate independently in the market. Furthermore, the distribution within the organic agri-food sector is quite inefficient. The findings of the research (Gajdić *et al.*, 2018) further confirm the previously mentioned

claims. In 2018, only 13.6% of organic food producers marketed their products through indirect distribution channels (via intermediaries, i.e., retail and wholesale). The majority of producers (60.6%) relied on direct sales of organic food. Nearly one-fifth of producers (19.6%) equally used both distribution channels, and only 6% of producers sold their organic products online (Gajdić *et al.*, 2018).

Numerous previous research studies have focused on the attitudes and characteristics of consumers of OAF products and the main reasons for purchasing them or consumer trust in organic agri-food supply chains (Harper and Makatouni, 2002; Padel and Foster, 2005; Shaw Hughner *et al.*, 2007; Żakowska-Biemans, 2011; Dimitri and Dettmann, 2012; Rong Da Liang, 2016; Kranjac *et al.*, 2017; Hashem *et al.*, 2018; Fleșeriu *et al.*, 2020; Gundala and Singh, 2021; Guanqi and Husnain, 2022). However, there has been far less research that addresses the issues of organic products from the perspective of distribution, specifically examining the views of various stakeholders in the organic agri-food supply chain (OAFSC). Most studies and previous research on organic production have focused on questions related to the state and prospects of organic production, barriers to and profitability of engaging in organic production (Petljak, 2011; Dovleac, 2016; Pondel, 2016; Barjaktarović *et al.*, 2016; Koreleska, 2017; Gugić *et al.*, 2017); the size of farms and the quantities produced (Bandara *et al.*, 2017), as well as the reasons or motivations for engaging in organic agriculture (Kubala *et al.*, 2008; Cranfield *et al.*, 2010; Vlahović *et al.*, 2015; Gajdić *et al*., 2018).

Distribution of OAF products, along with consumer awareness, represents a key factor for the growth of the organic agricultural-food product market and is often a major bottleneck (Gajdić *et al.*, 2018). In the literature, inefficiency in the supply chain for organic food products is highlighted as one of the main problems (Canavari *et al.*, 2007).

While there is interest in expanding the organic food market, studies on the distribution channels of organic agri-food in developing countries like Croatia are lacking (Gajdić *et al.*, 2018).

1.2. Theoretical background

Specifities of Agri-Food Supply Chain

The concept of the AFSC began to be mentioned in agricultural economics and management at the end of the 20th and the beginning of the 21st century. (Salin 1998; Fearne *et.al*., 1999; Marsden *et.al*., 2000; Van der Vorst, 2000; White, 2000; Batt and Rexha, 2000; Webster, 2001; Batt, 2003; Lindgreen, 2003; Renting *et.al*., 2003; Bourlakis and Weightman,

2004, Masuku and Kirsten, 2004). The term AFSC has been studied and used extensively in the disciplines connected with the agricultural science and agricultural economics, as well as with operational research and management science disciplines (Borodin *et.al*., 2016) and Management Science (MS). AFSC has not received a particular definition in the literature on SCM, which has led the researchers to apply the knowledge on SCM to AFSC modelling (Ahumada and Villalobos, 2009) or FSC modelling (Van der Vorst *et al.*, 2001). Only in the recent decade has the agri-food industry recognized SCM and begun to accept it as the key competitiveness concept (Tsolakis *et al.*, 2014).

The importance of supply chain management in the agri-food sector is visible only in the last few years, from the growth of various researches in the field of AFSC, both in developed (Dreyer *et.al*., 2016; Akhtar *et.al*., 2017; Utomo, *et.al*., 2018; Vroegindewey and Hodbod, 2018; Luo *et al*., 2018; Kataike *et.al*., 2019) and in developing countries (Singh, 2014; Siddh *et.al*., 2015; Prakash, 2018; Sufiyan *et al*., 2019). According to Chandrasekaran and Raghuram (2014), Agri-Food Supply Chain Management (AFSCM) involves a range of processes such as supply management, production management and demand management to ultimately satisfy customers through a competitive distribution channel.

The contemporary global agri-food systems require multiple approaches in SCM due to the increased flow of goods and information, both upstream and downstream in the value chain (Tsolakis *et.al*., 2014). As a result, there is a need for a common approach of the chain actors towards establishing efficient SCs. This particularly refers to the AFSCs, due to their distinctive features, and the consumers' increased attention and concern for the quality of the food they consume.

AFSCs are significantly different from other SCs due to the specific nature of agricultural production, its dependency on weather conditions, seasonality of production, specific product features, etc. (Boudahri *et al.*, 2012). These specific features and the differences with regard to other SCs were researched by numerous authors (Van der Vorst, 2000; Van der Vorst *et al.*, 2007; Tsolakis *et al.*, 2014; Sufiyan *et al.*, 2019). While Dreyer *et al.* (2016) emphasise the characteristics of the speciality FSC with reference to the conventional FSC, Sufiyan *et al.* (2019) stress the specific features of FSCM and compare them with the non-food supply chain management (non-FSCM) identifying eight significant factors or properties based on previous research. They also point out that efficient FSCM requires high integration level, coordinated approach, collaboration among chain actors, proper relationship and governance, good traceability system, advanced packaging, temperature-controlled logistics and waste management. Recent papers in the field of AFSC, claim that the number of studies

in this area is still too scarce, but that nevertheless an increase in research has been noted in the last few years (Hisjam and Sutopo, 2017; Zhong *et al.*, 2017; Routroy and Behera, 2017; Luo *et al.*, 2018; Sufiyan *et al.* 2019).

Relationships quality – impact on success

When managing the supply chain, it is very important to achieve collaboration between all members of the supply chain in order to achieve maximum efficiency. If the communication between the organizations in the supply chain is at an enviable level, the preconditions are created for achieving the appropriate level of satisfaction of end consumers, which will ultimately result in an increase in the income of business entities. Supply chain performance will be higher if the profitability of the supply chain is higher as well (Chopra and Meindl, 2004).

All participants in the AFSC should make efforts to improve the functioning of the chain, especially in terms of quality, competitiveness, pricing, requirements for absolute safety of agri-food products and the interrelationships between members of the chain (trust, communication, knowledge exchange, loyalty, etc.).

In many cases, the ability to compete has been directly linked with the company's ability to collaborate with other companies (Matopoulous *et al.*, 2007). Many researchers have also recognised the increased need for collaboration, thus accentuating the development and establishment of closer and long-term working relationships, even partnerships with suppliers, at various levels in the chain as ways to develop 'trust' and deliver additional value to customers, which results in the chain's better overall performance. Due to the specificity of AFSCs and significant differences in relation to non-FSCs, collaboration and 'trust' are crucial for better flows of products and information as well as for competitiveness and performance of the individual chain members and for the entire chains – thus providing improved contact methods and joint solutions for the growing issues related to food quality and safety and other difficult-to-detect attributes of food products (Sufiyan *et al.*, 2019).

Close collaboration can help reduce business uncertainty and risk and achieve better performance for each stakeholder and the entire supply chain. In order to achieve this, it is necessary to achieve certain prerequisites for quality cooperation. Wilding and Humphries (2006) list ten attributes that foster supply chain collaboration: reliability, long-term focus, communication, stability, win-win, trust, willingness to compensate, personal relationship, creativity, and C3 (collaboration, cooperation, and coordination). Bezuidenhout *et al.* (2012) believe that a lack of attributes such as reliability, trust, good personal relationships and

communication cause fragmentation, opportunism and a desire for excessive control of individuals in the chain, and that reciprocity and communication are key strengths of the system.

Aji (2016) singles out four key variables for building relationships: satisfaction, trust and two dimensions of commitment – commitment to continuity and commitment to support. Schulze and Spiller (2006), in researching the quality of relationships in the German pork sector, also argue that relationship quality must be conceived as a construct that encompasses satisfaction, trust, and commitment.

Collaboration and trust can help improve the efficiency of the agri-food supply chain. Supply chain performance refers to the overall performance of a chain that depends on the performance registered at each stage of the supply chain (Aramyan *et al.*, 2007). Therefore, it is important to improve not only the performance of individual members in the supply chain, but all participants in the supply chain. Competitive advantages are among the main strategic goals of the supply chain and can be generated and consolidated not only through the exchange of resources and information, but also through other indicators such as cost, delivery and delivery speed, quality and flexibility (Chen *et al.*, 2004). Performance measurement is the process of qualifying the efficiency and effectiveness of the supply chain.

Due to the specifics of agri-food chains and the characteristics that distinguish them from other supply chains, performance measurement is not easy to perform (Singh, 2014). Performance indicators of agri-food supply chains are grouped into four main categories (Aramyan *et al.*, 2007; Singh, 2014; Jie *et al*., 2013): efficiency, flexibility, responsiveness and food quality. Each of these main categories contains more detailed performance indicators.

1.3. Problems, Objectives and Research Hypotheses

The subject of research of this doctoral dissertation is organic agri-food supply chains (OAFSCs), i.e. the way in which collaboration and trust among members of the supply chain influence the success of the OAFSC. As mentioned in the introduction, there is a small number of organic producers in Croatia who distribute their products through retailers. As key stakeholders in the AFSC, farmers often have limitations in business skills, aspirations, and systematic thinking, so they often focus primarily on their own operations rather than creating an integrated collaboration system. On the other hand, retailers expect farmers to join together and improve their skills in promotion and business communication. Conflicts and misunderstandings can be minimized by understanding and managing the factors or prerequisites for quality collaboration in AFSC partnerships.

The studies analyzed have supported the role of collaboration and trust in various AFSCs and their impact on financial and non-financial performance. However, these analyses have mainly focused on the relationships between two out of three variables, such as the impact of collaboration on trust, trust on collaboration, or trust on performance. In this doctoral thesis, a CTP model was developed, which consists of 'collaboration', 'trust' and 'performance' and their interconnectedness. In this model, trust is the central component of the AFSC as it influences collaboration, and *vice versa*.

Decision makers on both sides must first be convinced of the ability, reliability and integrity of the other partner (Ganesan, 1994). Even when repeat business is expected, if there is to be a meaningful long-term relationship, the buyers and sellers concerned must learn to trust the other party to meet their obligations (Hakansson *et al.*, 1977; Hallén *et al.*, 1991; Morgan and Hunt 1994). All this means that positive experience with a channel partner breeds trust (Batt and Rexha, 2000). Trust in a business partner is influenced by positive past collaboration and effective communication. However, Fischer (2013) points out that the existence of personal connections is also very important when it comes to developing trust among the AFSC actors. The study by Mutonyi *et al.* (2016), shows that the trust between producer and customer is a strong mediator between price satisfaction and producer loyalty, thus supporting other studies on trust and its mediating role.

According to Aji (2016) as the satisfaction of farmers increases, so does trust, which leads to a long-term commitment to the relationship. Research by Reynolds *et al.* (2009) showed that trust is the most important sustainability indicator in young relationships while it is a collaboration history in the mature ones. This indicates that building trust is crucial at the beginning of a collaboration, and this can be achieved through effective communication and the development of personal connections. Growth of trust largely depends on positive experiences of collaboration, which should develop over time. However, if a country's general economic situation is difficult, or if economic power is unevenly distributed (which is often the case in AFSCs where retailers dominate most of the chain) trust in more powerful partners may be undermined or limited.

Willingness to collaborate will affect the development of trust, while without trust collaboration between partners in the chain cannot be developed. Therefore, trust is considered to be a mediator for enhancing supply chain performance. A similar model was analysed by Amentae *et al.* (2018) and Lobo *et al.* (2013) but without showing the mutual interaction between C and T.

Considering the above and starting from the fact that collaboration and trust can significantly affect the effectiveness of the AFSC, we assume that trust is the central component of AFSC management and is an important mediator between collaboration and the success of the AFSC. Accordingly, a conceptual research model was developed on which the empirical research based on the example of the producer-retailer relationship in organic food SC is based. The only research in Croatia that dealt with the perception of producers about the impact of quality of relations on the performance of SCs is that of Mesić *et al.* (2018) carried out at the SC performance of the traditional food sector.

Despite the need of the real sector to increase the efficiency of the distribution of organic food products in Croatia, so far no research was identified in international and domestic literature which researched the quality of the relationship between producers and retailers in organic food sector. Considering the increasing importance of the organic food sector globally and in Croatia, as well as the need to enhance the efficiency of organic food product distribution in Croatia, the main objective of this study is to examine the perceptions of organic food product producers on one side and retailers on the other side regarding the importance of collaboration and trust in their performance within the Organic Food Supply Chain (OFSC). The study aims to provide recommendations for improving the quality of relationships (RQ) between producers and retailers within this supply chain.

As scientists, in collaboration with practitioners, have shown increasing interest in and engagement with aspects of collaboration quality among stakeholders in Agri-Food Supply Chains (AFSCs) over the past 20 years, this doctoral dissertation has the primary goal of summarizing and critically analysing the current scientific literature in the field of Agri-Food Supply Chain Management (AFSCM), with a specific focus on collaboration (C), trust (T), and performance (P) aspects within AFSCs. This is intended to contribute to the AFSCM research field. Accordingly, the first research goal is defined as follows:

Ad 1) Theoretically summarize and critically analyse existing foreign and domestic literature in the field of supply chain management, supply chain management of agri-food products, with a particular focus on collaboration, trust, and performance in the supply chain of organic agri-food products.

The mentioned arguments and research goal have led to the formulation of the first research questions that will be answered through a systematic literature review (SLR) in combination with bibliometric analysis (BA).

RQ1. *How are 'collaboration', 'trust' and 'performance' conceptualised in agri-food supply chain management?*

RQ 2. *How is collaboration, trust and performance discussed in the field of AFSCM and how did it develop over time?*

Due to the insufficient research on supply chain relationships in the agri-food sector, particularly in the context of organic agri-food products, the primary aim of this study is to provide a more detailed examination and analysis of these supply chains. It seeks to investigate the perceptions of organic agri-food producers and retailers regarding the importance of collaboration and trust in their market performance and the overall success of organic agri-food supply chains. Therefore, the second research goal has been defined, which will address several research questions:

Ad 2) Explore the relationship between collaboration and trust among members of the organic agri-food supply chains.

First, a preliminary empirical research was conducted to provide answers to the following research questions:

RQ3. *How do organic agri-food producers perceive the most important factors of collaboration with retailers in the organic agri-food supply chains?*

RQ4. *How developed is trust among organic agri-food producers and retailers in the organic agri-food supply chains?*

RQ5. *How do collaboration and trust between organic agri-food producers and retailers influence overall organic agri-food supply chain performance?*

The preliminary study provided insight into the perceptions of small and medium-sized Croatian organic agri-food producers and retailers regarding the factors of collaboration and trust in their mutual relationship and the impact of trust on the performance of producers, retailers, and the overall supply chain. This study was the first of its kind in Croatia and served as the basis for conducting research on a larger sample of organic agri-food producers and retailers.

In line with the subject and the aim of the research, a research model and the fundamental scientific hypothesis *"Collaboration and trust influence the performance of organic agri-food supply chains*" were established. As previously mentioned, trust, as a central variable, is influenced by various drivers or prerequisites for quality collaboration, which ultimately affects the performance of individual producers and retailers, as well as the agri-food supply chain as a whole.

To examine the previously established model, two fundamental hypotheses (H1 and H2) were formulated and analysed through 11 working hypotheses. The working hypotheses test the effects of individual drivers of collaboration and trust on the performance of the OAFSC

using examples of the collaboration between producers and retailers of OAF products in Croatia. Each factor is discussed individually in the fourth paper, which is the result of the conducted research on a sample of producers and retailers of OAF products.

According to some authors, trust is one of the prerequisites for collaboration (Matopoulos *et al*. 2007; Schulze-Ehlers *et al*. 2014; Msaddak *et al*. 2021), and simultaneously, it develops through high-quality collaboration. This means that as collaboration develops, so does trust (Fisher 2013; Amentae *et al.* 2018; Gajdić *et al*. 2021). The level of trust that a farmer invests in their customers develops and grows over time and is heavily based on positive previous experiences (Batt and Rexha, 2000) and the fulfilment of the prerequisites for quality collaboration in agricultural and food supply chains, as previously mentioned (Gajdić *et al*. 2021). Therefore, the first fundamental hypothesis has been proposed, which will be supported by five sub-hypotheses:

H1: *Collaboration positively influences trust between organic agri-food supply chain actors.*

H1a: Inter-organizational collaboration positively influences trust between organic agri-food supply chain actors.

H1b: Improved communication has a positive influences on trust between organic-agri food supply chain actors.

H1c: Information sharing positively influences trust between organic agri-food supply chain actors.

H1d: Long-term orientation positively influences trust between organic agri-food supply chain actors.

H1e: Transparency positively influences trust between organic agri-food supply chain actors.

According to the previously described CTP model, trust is considered a mediator for improving supply chain performance. Since "collaboration" and "trust" can facilitate the efficiency of agri-food supply chains, it is crucial to enhance the performance of not only individual members within the supply chain but also all its participants as a whole. Supply chain performance refers to the overall success of the chain, which depends on the success achieved in each stage of the supply chain (Aramyan *et al*., 2007). Trust is an important strategic prerequisite and a key factor that can enhance or limit (in the case of distrust) successful collaboration in AFSC (Gajdić *et al.*, 2021). In the agricultural sector, trust is more critical for small and medium-sized enterprises (SMEs), characterized by the existence of personal relationships among business partners (Fischer *et al.*, 2007; Lu *et al.*, 2012). Through the SLR

(Systematic Literature Review) study (Gajdić *et al.*, 2023), a certain number of papers were identified that measured and confirmed the influence of trust on the financial and non-financial performance of AFSC (Masuku and Kirsten, 2004; Lu *et al.*, 2008; Gorton *et al.*, 2015; Odongo *et al.*, 2016; Bandara *et al.*, 2017; Uddin, 2017; Susanty *et al.*, 2017; Mesić *et al.*, 2018). Some papers investigate the impact of trust on performance with an emphasis on its effects on supply chain sustainability and specific performance indicators of agri-food supply chains (Jie *et al.*, 2013; Gagalyuk *et al.*, 2013; Dinge *et al.*, 2014; van der Werff *et al.*, 2018). Therefore, the second fundamental hypothesis has been proposed, which will be supported by six sub-hypotheses:

H2: *Trust positively influences performance between organic agri-food supply chain actors.*

H2a: Trust between supply chain actors positively influences business process improvement in the organic agri-food supply chain.

H2b: Trust between supply chain actors positively influences the ability to quickly respond to customer needs in the organic agri-food supply chain.

H2c: Trust between supply chain actors positively influences cost reduction in the organic agri-food supply chain.

H2d: Trust between supply chain actors positively influences achievement of competitive advantages in the organic agri-food supply chain.

H2e: Trust between supply chain actors positively influences the achievement of mutual benefits in the organic agri-food supply chain.

H2f:Trust between supply chain actors positively influences the overall efficiency of the organic agri-food supply chain.

Due to the different product characteristics (fresh, processed food), there are different relationship structures in AFSCs (e.g., farmer-processor, farmer-retailer, processor-retailer, etc.) or forms of management that significantly influence the quality of collaboration and relationships. The research results of Orsini *et al.* (2020) indicate that in developed organic food markets, such as Denmark, France, Germany, and the United Kingdom, the sale of fresh organic food products is more prevalent in supermarkets compared to specialized organic food stores.

Orsini *et al*. (2020) also believe that the use of different sales channels is influenced by the type of food product, not just the stage of development of the organic food market. Furthermore, in the study by Viitaharju and Lähdesmäki (2012), retailers particularly emphasized product-related features in building trust. Based on the above, the assumption is

that there are differences in the quality of collaboration and mutual trust between producers and retailers of fresh organic agri-food products and processed products. In line with this, the third research objective has been defined:

Ad 3) To determine whether there are differences in collaboration and mutual trust among participants in the OAFSC based on the type of product (fresh organic agri-food products or processed products);

In accordance with the third research objective, the H3 hypothesis was formulated and tested in the fourth chapter of this doctoral dissertation.

H3: There are differences between the supply chains of organic agri-food products depending on the type of product that is distributed (fresh organic agri-food product or processed product).

Given the lack of empirical research on specific activities and relationships that form within AFSCs, the fourth research objective has been defined to test the validity of the conceptual research model on the organic agri-food supply chains and to apply and verify the model in this study on other AFSCs while considering their specific characteristics.

Ad 4) Test the reliability of the measuring instrument for measuring the performance of the organic agri-food supply chains.

Based on existing scientific facts, empirically gathered information, and insights elaborated in this doctoral thesis, the implications of the research will be explained, upon which recommendations for further research and practical application of the findings will be based. Accordingly, the fifth research objective has been set:

Ad 5) Propose necessary short-term and long-term activities that will contribute to enhancing collaboration and trust in managing the supply chain of organic agricultural and food products, thereby enabling improvements in the performance of organic agri-food supply chains.

1.4. Scientific methods

This dissertation uses several scientific methods that come from different sources. The research is divided into four separate research papers and the scientific methods are applied to the specific research problems. In the first research paper in this dissertation a systematic literature review (SLR) was conducted by synthesizing research published over a period of more than 20 years. The content of 137 papers related to CTP was analyzed with respect to the

analytical unit, applied research methodology, geographical focus of the papers, the type of relationships, and actors involved in each SC.

SLR as a method is systematic, transparent, replicable, and concise, which means it's a scientific process that follows structured steps to achieve the research goal (Tranfield *et al.*, 2003; Dania *et al.*, 2018), and it's often used as a reliable model for literature research in the field of management (Luo *et al.*, 2018). SLR also enables researchers to identify similarities and contradictions in previous research and synthesize previous research into new perspectives (Chaudhary *et al.*, 2021). As Agamez-Arias and Moyano-Fuentes (2017) state, the analysis and synthesis step of SLR involves grouping literature according to similar or related thematic aspects. Accordingly, the sample was divided into different groups of publications that conceptually deal with "collaboration", "trust" and "performance" in AFSCM, and the papers were analyzed with respect to the analytical unit, applied research methodology, geographical focus of the papers, the type of relationships, and actors involved in each supply chain (SC).

The second research paper in this dissertation identifies, evaluates, and structures research focusing on "collaboration" (C), "trust" (T), and "performance" (P) in the agricultural and food supply chain (AFSC) and uncovers its intellectual foundation. The methodology follows the procedure outlined by Bresciani *et al.* (2021) for conducting a concise BA. A rigorous BA has been carried out for this study with the aim of addressing all the pre-defined research questions. The results of the conducted BA pertain to the CTP discussion within a preselected number of peer-reviewed academic articles, which were obtained from the WoS CC (Web of Science Core Collection) database. In total, a sample of 69 papers has been identified, comprising more than 3600 references. The content of these papers was further analyzed in a systematic literature review (SLR) concerning the subject area, theoretical frameworks, research methodologies, supply chain (SC) categories, and other relevant categories.

BA is a valuable research tool as it can reveal the nature and direction of research that this field has taken over the past decade (Saha *et al.*, 2020). BA relies on quantitative methods of multiple matching (Dabic *et al.*, 2019), while literature reviews are based on the analysis of the content of selected papers (Seuring and Gold, 2012). BA shows the interconnections among articles based on the frequency of citations and co-citations in other articles. Furthermore, BA is unbiased, allowing for greater objectivity in literature reviews. It is simpler and more reliable for processing a large number of articles, enabling a deeper analysis of relationships among articles, citations, co-citations, and keywords, thus resulting in comprehensive information about the research area (Feng *et al.*, 2017; Kotzab *et al.*, 2019). In this way, 3600 references were analyzed using the terms of Aria and Cuccurullo (2017) and Zupic and Cater (2015). The

analysis used the Biblioshiny R-tool Bibliometrix software, as well as VOSviewer for further visualization (Aria and Cuccurullo, 2017; van Eck and Waltman, 2010).

BA (Bibliometric Analysis) is a valuable research tool because it can uncover the nature and direction of research that this field has taken over the past decade (Saha *et al*., 2020). BA relies on quantitative methods of multiple matches (Dabic *et al*., 2019), while the literature review is based on the content analysis of selected works (Seuring and Gold, 2012). BA reveals the interconnections among articles based on the frequency of citation and co-citation in other articles. Furthermore, BA is unbiased, allowing for greater objectivity in literature reviews. It is simpler and more reliable for processing a large number of articles, enabling a deeper analysis of relationships among articles, citations, co-citations, and keywords, thus resulting in extensive information about the research field (Feng *et al*., 2017; Kotzab *et al*., 2019). In this way, 3600 references were analyzed using the concepts of Aria and Cuccurullo (2017) as well as Zupic and Cater (2015). Biblioshiny R-tool Bibliometrix software was used in the analysis, as well as VOSviewer for further visualization (Aria and Cuccurullo, 2017; van Eck and Waltman, 2010).

Traditional methods, such as SLR (Systematic Literature Review), can provide more insights into the research topic, while BA can complement SLR and offer a comprehensive overview of all existing studies (Hisjam and Sutopo, 2017). In summary, these methods are not interchangeable but complementary (Feng *et al*., 2017), which is the greatest value of simultaneously using both methods. This empirical research was conducted in seven steps, which are detailed in another paper.

Croatian organic food supply chain (SC) is a distribution channel in which numerous changes have occurred over the last decade, including the arrival of international traders and increased imports of organic food. The main objective of the third paper in this dissertation was to examine the perceptions of organic food producers regarding the importance of collaboration and trust for their performance in the organic food SC. In order to obtain the information necessary to address the research questions in the third paper, primary data were collected using in-depth interviews that allowed better access to the thoughts, attitudes, and motivational ideas of organic food producers (according to Hingley *et al*., 2006).

Studies based on in-depth interviews have been accepted as qualitative research methods in the agriculture and food industry because it is a dynamic process that allows the researcher to explore the research topic in real conditions (Mason, 1990; Uddin, 2017; Lees and Nuthall, 2015; Yang *et al*., 2018; Aji, 2016). In-depth interviews are an effective data collection tool, and their advantage lies in their ability to cover a wide range of interests, helping the researcher to explore and gain better insight into key issues related to the research subject. The interview

guide was prepared based on an extensive review of the literature and collected data on the specifics of the organic agri-food market in Croatia. The interviews were conducted face-to-face with six OAF producers from March to August 2021. Interviews conducted with OAF producers helped to create a general idea of the perception and vision of OAF producers, as well as their attitudes toward collaboration with retailers. It was also possible to identify differences in attitudes between two categories of producers based on the size and determine whether there are differences in collaboration and mutual trust among participants in the supply chain of OAF products, depending on the type of product (fresh OAF products or processed products). Sampling and the number of interviews in the field study may depend on the research objectives, complexity, available time, and costs (McGivern, 2009). In this study, only six interviews were conducted, as it was preliminary research that confirmed the research problem and the purpose of the doctoral thesis. The interviews provided valuable insights for designing questionnaires that were used in the main study with a larger sample of producers and retailers. Furthermore, for research purposes, three in-depth interviews were conducted with retailers. The aim of the research was to pre-test and refine the questionnaire to ensure that the survey will be as accurate and relevant as possible when conducted on a larger sample of retailers. The research was conducted from March to August 2021.

The fourth paper is based on empirical research conducted on a sample of 81 OAF producers (Organic Family Agricultural Holdings) and 22 retailers who sell OAF products in their assortment. Drawing on existing measurement scales gathered through a detailed review of foreign and domestic literature, as well as pilot testing conducted on a sample of OAF producers (Gajdić *et al.*, 2021) and pilot testing conducted on retailers, two unique research instruments were developed: a questionnaire for OAF producers and a questionnaire for retailers. The research was conducted in the territory of the Republic of Croatia, from June 2022 to January 2023. The unit of analysis, i.e., the respondents of the OAF producer questionnaire, were owners of organic family agricultural holdings, companies engaged in the production of organic food, while the respondents of the questionnaire for retailers (small, medium, and large, specialized retailers of food products selling organic agri-food and retailers of general consumer goods) were owners, managers, or procurement directors. The criterion for participation in the research was a minimum of three (3) years of active business in the Croatian market. Before starting the survey, respondents were contacted by phone or had a personal meeting with them to inform them about the research's purpose. Respondents were guaranteed anonymity and data confidentiality. After contact was established, a link to the questionnaire was sent to respondents' email addresses via Survey Monkey.

Based on the collected data, statistical data processing and interpretation of research results were performed in accordance with the research hypotheses. Primary data were processed using appropriate methods of descriptive and inferential statistics. The first and second research hypotheses were analyzed using structural equation modeling using the partial least squares structural equation modeling (PLS-SEM) method, which supports smaller research samples and is used in supply chain management research (Mutonyi *et al*., 2016; Petljak *et al*., 2018; Fleșeriu *et al*., 2020). The collected data were analysed using MS Office Excel, IBM SPSS software package 25.0, and SmartPLS4 software.

1.5. Structure of the dissertation

This doctoral dissertation is divided into six chapters and is written in the form of four research papers.

In the introduction (Chapter 1) the research area is described, problems, objectives and hypotheses of the research are defined, and the scientific methods used to achieve the research objective are explained. Furthermore, the structure of the dissertation follows the structure of four papers, each of them being a separate chapter.

The second chapter contains the first of four papers titled „*Conceptualizing collaboration, trust and performance in agri-food supply chain management: a systematic literature review and frame of reference"*.

Third chapter contains second paper titled *„Collaboration, trust and performance in agri-food supply chains: a bibliometric analysis "*.

Fourth chapter contains the third paper titled „*Preliminary research about producers' perceptions of relationship quality with retailers in the supply chain of organic food products in Croatia "*.

Fifth chapter contains fourth paper titled „*Assessing the Influence of Collaboration and Trust on the Organic Agri-Food Supply Chain Performance: Empirical Insights from Producers and Retailers*„ which presents the results of empirical research and answers the main research questions of this dissertation.

The sixth part of the dissertation (Chapter 6) provides concluding remarks, highlights policy implications and refers to the main theoretical and applied contribution of the research.

Chapter 2

Paper No 1(paper in process of publication):

Gajdić, D., Petljak, K. Kotzab, H. **"*Conceptualizing collaboration, trust and performance in agri-food supply chain management: a systematic literature review and frame of reference*"**

2. CONCEPTUALIZING COLLABORATION, TRUST AND PERFORMANCE IN AGRI-FOOD SUPPLY CHAIN MANAGEMENT: A SYSTEMATIC LITERATURE REVIEW AND FRAME OF REFERENCE

Abstract

Purpose *– This paper identifies, evaluates and structures the research that focuses on 'collaboration', 'trust' and 'performance' (CTP) in agri-food supply chain (AFSC) and reveals its conceptualization based on a systematic literature review.*

Design/methodology/approach *– A systematic literature review (SLR) was performed by synthesizing the research published over a period of more than 20 years. Also analysed was the content of 137 papers related to CTP in regards to the to the analytical unit, applied research methodology and geographical focus of the papers, type of relationship, and chain actors included in a particular supply chain (SC).*

Findings – *Our study identifies the main agri-food supply chain (AFSC) actors and their relationships. It also notes that research rather focuses on trust than on performance and/or 'collaboration'. The connection and interdependence of C, T and P in a relationship is still an under researched area with a focus on the attitudes of the individual perception of primary agri-food producer (PAFP) in relation to its downstream partners in the chain. Nine typical relationship types have also been identified based on the number of interrelated actors and aim.*

Research limitations / implications – *Our results refer to the CTP discussion in AFSCM within a preselected number of peer-reviewed academic journals as well as to the data quality as provided by the Web of Science.*

Practical implications *–From the managerial perspective, this paper addresses the key aspects of AFSCM, especially when it comes to inter- and intra-organizational relationships, the ways how the relationships can be managed.*

Originality/value *– To our knowledge, this is the first paper to systematically review the AFSC literature and report the knowledge structure and advance research about CTP in AFSCM. The main contributions to the literature are the development of a CTP-framework for AFSCM, the identification of CTP-relationship types within AFSCs, as well as proposals for future research based on gaps or less covered aspects. The paper provides a novel framework for further studies in the relationship management in AFSC.*

Keywords: *collaboration; trust; performance; food industry; channel relationships; systematic literature review.*

2.1. Introduction

Food supply chains (FSCs) are evolving and accordingly matching the supply and demand is considered to be the main goal of a FSC (Apaiah *et al.,* 2005). Regardless of whether these chains are local, national or international, the availability of food at the right time, in the right quantities and the right quality is paramount. Some of the critical factors in the FSC are ensuring fair 'collaboration' among the stakeholders, attention to economic, environmental, social, organizational, marketing and food safety factors, and responsibility towards the firms, consumers, and society (Fritz and Schiefer, 2008).

Fierce global market competition and high customer expectations have compelled companies to invest increasingly in and focus on building relations with their suppliers and customers. The managerial mind-set advocates collaboration among the business partners and prompt reactions to the customers' needs as a precondition for a competitive market strategy. In this aspect, a holistic view on supply chain management (SCM) is an indispensable top management strategy in Western countries since the 90s, particularly in manufacturing and retailing. Over the years the notion of SCM has changed; while it has always been predominantly directed at industrial manufacturing and services, in agriculture it received surprisingly little attention (Routroy and Behera, 2017).

Only in the recent few years has the importance of SCM in the agri-food sector been evident in the increase of various research projects in the field of agri-food supply chain (AFSC), both in developed (Dreyer *et al.*, 2016; Akhtar *et al.*, 2017; Utomo *et al.*, 2018; Luo *et al.*, 2018; Kataike *et al.*, 2019; Palacios-Argüello *et al.* (2020) and in the developing countries (Mishra *et al.*, 2013; Singh, 2014; Siddh *et al.*, 2017; Prakash, 2018; Sufiyan *et al.*, 2019; Msaddak *et al.*, 2020).

Food supply chain management (FSCM) is vastly complex and collaboration in the agri-food supply chain (AFSC) is largely subject to the specific features such as food quality, food safety and limited freshness. All this makes AFSCs more complex and difficult to manage, but at the same time significantly different from non-FSCs (Sufiyan *et al.*, 2019). Supply chain (SC) agility is crucial for an AFSC to be able to respond quickly to the changes and challenges emerging in the food sector, such as rapid urbanization, natural disasters, the changing nature of food demand, food quality, food assurance, traceability, the emergence of infectious diseases

(e.g. COVID 19), accelerated changes in agricultural technology (e.g. precision agriculture), the weaknesses of the regional rural population to meet the requirements set by food processing and food retail companies, the impacts of climate change on agriculture, etc. (Susanty *et al.*,2017; Mathu and Phetla, 2018). Consequently, there should be an adequate level of collaboration among chain actors in the AFSC to focus on economic, environmental, social, organizational, marketing, qualitative, and safety factors (Sufiyan *et al.*, 2019).

Thus, we hypothesise that collaboration is more a necessity than an option in AFSCs. Significant differences that occur in the AFSC structure will be considered when explaining the conceptual model later in the paper. A global agri-food network is dominated by multinational food processing companies and the retail sector as opposed to short food supply chains (SFSCs) or local food chains. Different members of food chains also have different expectations, depending on their relative position, role and power in the food chain (Vlachos and Bourlakis, 2006).

SC efficiency is a major challenge even for developed countries like the USA, Germany and England despite a highly developed and organized retail markets. In addition, most of the initial suppliers in the food industry (both in the developing countries and the developed European countries) are small farmers who are highly disorganized, lack supporting infrastructure and have weak bargaining power (Fischer *et al.*, 2007; Malagueño *et al.*, 2019). Given that one of the specifics of AFSCs is that these chains are mainly short (producer-buyer chain or producer-processor chain), the first contact will be made at the initiative of one of the partners in the chain (e.g. producer or buyer).

Since the existing studies on behavioural factors in the context of AFSCs are rather limited in number (Hisjam and Sutopo, 2017; Dania *et al.*, 2018; Prakash, 2018), this paper aims to answer the following research question:

How are 'collaboration', 'trust' and 'performance' conceptualised in agri-food supply chain management?

In doing so, we encompass a wider area of research in 'collaboration', 'trust' and 'performance' including the related factors in the FSCs by means of a systematic literature review. The analysis of the findings will be contextualised and their potential implementations in AFSC to offer an aggregate perspective of the key scientific research contributions. In accordance with this and after Kotzab *et al.* (2019), this paper focuses on 'collaboration', 'trust' and 'performance' (CTP model) in AFSCs. Thus, it intends to identify the current insights in the CTP domain in AFSCs and proposes further potential research in this field.

The remainder of the paper is as follows. After an introduction into the problem background and the research objective, section 2 presents the notion of the AFSC and its specifics. The conceptual framework of CTP in AFSCM is presented and explained in section 3, and section 4 features the necessary information on our methodological approach, data collection, and the characterisation of the research front by means of content analysis based literature review. The results of our study are shown in section 5 with special reference to the categorization of papers with respect to the focus of the research according to CTP in different relationship structures. This section also includes a critical discussion of our findings. The paper closes with the answers to our research question, a presentation of the limitations of our study, and an outlook for future research.

2.2. Agri-food Supply Chain

2.2.1. Little consensus on the general understanding of the concept

Technological, social, economic, industrial, legal and other factors have affected the agri-food sector and determined the availability of food to the end consumer, making the FSC a complex network. Businesses are obliged to ensure that agri-food products reach the end consumers in time to meet special food safety and quality attribute requirements that often imply specific dietary trends, such as those for organic food, ethnics or religious denominations of the consumers (Sufiyan *et al.*, 2019). The contemporary global agri-food systems require multiple approaches in SCM due to the increased flow of goods and information, both upstream and downstream in the value chain (Tsolakis *et.al*., 2014). As a result, there is a need for a common approach of the chain actors towards establishing efficient SCs. This particularly refers to the AFSCs, due to their distinctive features, and the consumers' increased attention and concern for the quality of the food they consume.

An AFSC is a system of interconnected chain partners participating in different business processes along the SC while creating a larger variety of complex relationships that are reflected in the market and may essentially impact its performance (Van der Vorst, 2006). Therefore, cooperative behaviour and the quality of partner relationships in the AFSCs, such as collaboration, 'trust' and other related factors, present some key research questions and areas that are still under-represented. Chen *et al.* (2004) and Mahajan *et al.* (2017) highlight the need for clear definitions and the conceptualisation of the AFSC as its terminology often varies in literature and research, depending on the academic background of the author (s), their research

topic, the sector studied (e.g. food industry, retailing), type of product (fresh/processed) and the SC participants (**Appendix A Table 1.**). There is no widely accepted definition of the agri-food supply chain (AFSC), as many authors offer general definitions as if it were a universal SC. Thus, it would be preferable to adapt its definition with regard to the different types and specific features of agricultural production, as well as to the types of agri-food products and its varied structure.

AFSCs are significantly different from other SCs due to the specific nature of agricultural production, its dependency on weather conditions, seasonality of production, specific product features, etc. (Boudahri *et al.*, 2012). These specific features and the differences with regard to other SCs were researched by numerous authors (Van der Vorst, 2000; Van der Vorst *et al.*, 2007; Tsolakis *et al.*, 2014; Sufiyan *et al.*, 2019). While Dreyer *et al.* (2016) emphasise the characteristics of the speciality FSC with reference to the conventional FSC, Sufiyan *et al.* (2019) stress the specific features of FSCM and compare them with the non-food supply chain management (non-FSCM) identifying eight significant factors or properties based on previous research. They also point out that efficient FSCM requires high integration level, coordinated approach, collaboration among chain actors, proper relationship and governance, good traceability system, advanced packaging, temperature-controlled logistics and waste management. Recent papers in the field of AFSC, claim that the number of studies in this area is still too scarce, but that nevertheless an increase in research has been noted in the last few years (Hisjam and Sutopo, 2017; Zhong *et al.*, 2017; Routroy and Behera, 2017; Luo *et al.*, 2018; Sufiyan *et al.* 2019).

2.2.2. Modeling AFSC

The origins of the AFC concept in agricultural economics and management date back to the end of 20th and the beginning of the 21st century (Salin 1998; Fearne and Hughes, 1999; Marsden *et al.*, 2000; Van der Vorst, 2000; White, 2000; Batt and Rexha, 2000; Van der Vorst, 2001; Webster, 2001; Bourlakis and Weightman, 2004). The term AFSC has been studied and used extensively in the disciplines connected with the agricultural science and agricultural economics, as well as with operational research and management science disciplines (Borodin *et al.*, 2016). AFC has not received a particular definition in the literature on SCM, which has led the researchers to apply the knowledge on SCM to AFSC modelling (Ahumada and Villalobos, 2009) or FSC modelling (Van der Vorst *et al.*, 2001). Only in the recent decade has the agri-food industry recognized SCM and begun to accept it as the key competitiveness concept (Tsolakis *et al.*, 2014).

AFSC starts with the primary agri-food producer (PAFP), which can be organisation or individual active in agriculture and the primary agri-food product harvested at this stage undergoes different processes that include different processing, treatment, packaging, storage and transportation methods, distribution channels (importers, wholesalers, retailers, hotel/restaurant/catering – HoReCa, and others) as well as other activities before the final product reaches the end consumer.

Considering the SC from the agi-food perspective, it is important to point out that, due to the aforementioned specifics and a number of different actors, the AFSC is much more complex to present and define. **Figure 2.1.** features the notions of Mentzer *et al.* (2001) supply chain understanding by differing direct, extended and ultimate SCs which represent different degrees of complexity. Furthermore, due to the specific characteristics of AFSCs it is also necessary to consider the so-called direct SCs, zero-level SCs or short supply chains (SSCs) (Gajdić, 2019).

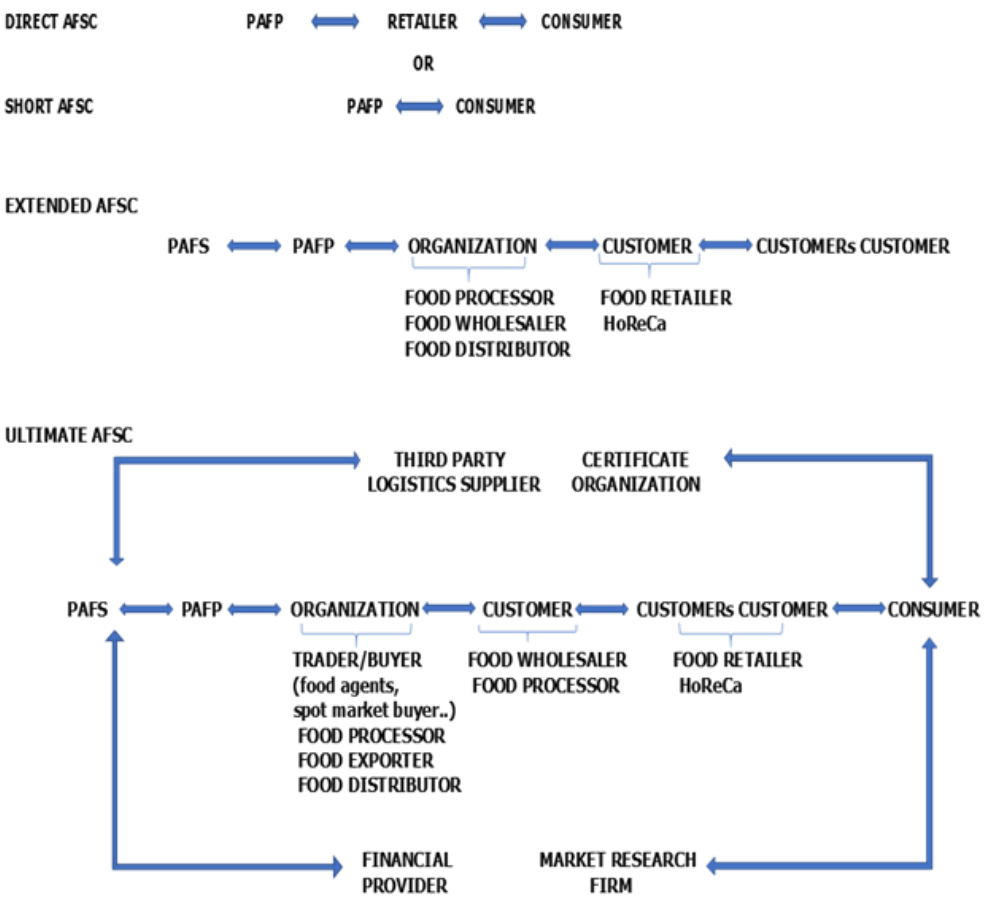

Figure 2.1. Different levels of AFSC depending on complexity level

Source: Author's work according to Mentzer et al. 2001.

Thereby, a direct chain means the sale of agri-food products to the final consumer with one intermediary at most, which is usually the retailer. With regard to supplying agri-food products, it should be pointed out that most of these products are sold to the consumers through various forms of SSCs. Consequently, the AFSC is understood as a dynamic system that connects farmers with consumers and thus can be defined as a set of trade partnerships and transaction that deliver agri-food products from producers to consumers. AFSCs connect three main sectors (Bukeviciute *et al.,* 2009): agriculture, food industry and distribution sectors (wholesale and retail). By definition, and according to Mentzer *et al.* (2001), this represents an 'extended AFSC," and an 'ultimate AFSC". Depending on the number of stakeholders involved and the type of product, they may look different. The expanded AFSC includes the primary agri-food supplier (PAFS) as its supplier and other actors involved in downstream flows of products, services, finances, and / or information. In place of an organization or a focal company a food processor, a food wholesaler or, e.g. a food distributor can be found, and a food retailer or HoReCa may take the role of a customer. Finally, the ultimate AFSC includes all organizations involved in all upstream and downstream flows of products, services, finances, and information from the PAFS to the ultimate customer that is, the end consumer. The ultimate AFSC can be very complex, especially if it is an international or global AFSC. Such a chain may include various market facilitators, service providers or intermediaries. Given the potential for a myriad of alternative AFSC configurations, it is important to note that any of the actors shown may be part of different AFSCs or of the upstream and downstream flows that make up the SC. Generally, we understand the AFSC as a system of interconnected chain partners participating in different business processes along the SC while creating a larger variety of complex relationships that are reflected in the market and may impact its performance essentially (Van der Vorst, 2006). Therefore, the research in cooperative behaviour and the quality of partner relationships in AFSCs, such as 'collaboration', 'trust' and other related factors, are still prominently under-represented as research questions and areas.

2.3. Conceptualising CTP in AFSCM

In many cases, the ability to compete has been directly linked with the company's ability to collaborate with other companies (Matopoulous *et al.*, 2007). Many researchers have also recognised the increased need for collaboration, thus accentuating the development and establishment of closer and long-term working relationships, even partnerships with suppliers,

at various levels in the chain as ways to develop 'trust' and deliver additional value to customers, which results in the chain's better overall performance. Due to the specificity of AFSCs and significant differences in relation to non-FSCs, collaboration and 'trust' are crucial for better flows of products and information as well as for competitiveness and performance of the individual chain members and for the entire chains – thus providing improved contact methods and joint solutions for the growing issues related to food quality and safety and other difficult-to-detect attributes of food products (Sufiyan *et al.*, 2019).

The discussion in the previous section has shown that AFSCM is focused on the relations among the chain actors in the SC. Collaboration, trust, commitment, efficient communication, exchange of information and readiness to share risk are indispensable factors in attaining long-term collaboration between the consumers and the suppliers as well as the key determinants of the performance of the SC itself. The existing research and practice have revealed that one of the most important SCM factors are enhanced collaboration and trust among the actors in the SC as they can significantly impact the performance of each member individually and of the whole chain.

2.3.1. Collaboration

One of the aims of each SC is that businesses do not view each other individually, but as members of the competitive network involving multiple companies in value creation. That aim can only be achieved through *collaboration* of all participants in the SC, which requires integration of all individual network members in order to generate maximum benefits for the SC members (Kache and Seuring, 2014). Mentzer *et al.* (2001) defined supply chain collaboration (SCC) as the way the companies involved in the SC act responsibly to achieve common goals by sharing knowledge, information, profit and risk.

There are different ways of improving collaboration within the AFSC since it thrives on relationships at both interpersonal or organisational levels. The papers that studied the different factors of collaboration in SCM in general appeared first at the end of 20th century and the beginning of 21st century. The current research is based on the marketing research that dealt with the buyer-seller relationship (Dwyer *et al.*, 1987; Morgan and Hunt, 1994; Palmer and Bejou, 1994; Doney and Cannon, 1997; Mentzer *et al.*, 2001). Wilding and Humphries (2006) observed that the success of the SC relationship is dependent on: creating a win-win relationship in which each party is delighted to be involved in open communication and information sharing; relationship reliability and building up 'trust'; relationship stability; relationship creativity through promoting quality and innovation and C3 (collaboration, cooperation and

coordination). Bezuidenhout *et al*. (2012) stated that absence of attributes like reliability, trust, quality personal relationships and communication causes fragmentation; opportunism and inclination to over-control the individuals in the chain and that reciprocity and communication are the key strength of the system. Reynolds *et al*. (2009) believe that quality relationships are developed when both parties develop common goals, joint activities and communicate frequently. With respect to this, category management is often viewed as one of the possible ways for intensifying collaboration between supplier and retailer (Vlachos and Bourlakis, 2006; Hingley *et al*., 2008; Maglaras *et al*., 2015). Singh *et al.* (2018) consider that the objective of collaboration depends on the level of trust, bargaining power and commitment between the SC partners. Reynolds *et al.* (2009) claim that efficient communication, presence of personal relationships and equal power distribution between buyers and suppliers are the key determinants of sustainable vertical business relationships. Furthermore, the relevance and significance of the individual determinants differ with regard to the different stages of the SC and in formal (contractual) and informal types of relationships. In his research Aji (2016) identified four key variables in relationship building: contentment, trust, and two dimensions of commitment – commitment to continuity and commitment to support. Schulze and Spiller (2006) also claim that the quality of relationships must be conceived as a construct that encompasses contentment, trust and commitment.

2.3.2. Trust

Collaboration in the context of interorganisational relations is vitally important as trust and efficient and effective communication are the prerequisites of quality collaboration (Kottila and Rönni, 2008). According to Fischer (2013), effective communication, together with positive collaboration experience, as well as the presence of personal connections, has a positive impact on the level of trust among the chain actors. Trust is developed through long-term orientation, i.e. partnerships among the members of the SC are conceptualised as durable, and its members collaborate to reduce uncertainty and create the chain's competitive advantages (Lees and Nuthall, 2015). The greater the level of trust among the chain actors, the higher the probability for the development of long-term collaboration. Trust is the critical determinant of a good buyer-seller relationship (Batt and Rexha, 2000). An important feature of trust is that it can only be dyadic, i.e. involving two parties.

Trust is considered to exist if "one party believes that the other is honest or benevolent" (Doney and Cannon, 1997) and that none of the partners will act opportunistically, but will rather create chances that are beneficial for both organisations involved in the partnership

(Bradach and Eccles, 1989; Masuku and Kirsten, 2004; Dani, 2015). In many ways, trust can be seen as an antonym for opportunism in business relations (Kelly *et al.*, 2018). Vlachos and Bourlakis (2006) examine the impact of key factors on collaboration performance including trust and the duration of collaboration. They conclude that different FSC partners perceive differently the key critical factors leading to SC effectiveness.

There is no unique definition of 'trust' and furthermore different authors discriminate among various types and forms of trust (Jones *et al.*, 2010; Laeequddin *et al.*, 2010; Whipple *et al.*, 2013). Revising the literature, Tejpal *et al.* (2013) offer a chronological review of the development of definitions of 'trust' that demonstrates clearly the various factors of SCM collaboration quality including trust (Sahay, 2003) dating back 30 years ago. Besides that, the paper discusses various forms of trust and the antecedent factors related to trust. Viitaharju and Lähdesmäki (2012) define 'trust' as "confidence that a business partner can be relied to fulfil its obligations in a situation entailing risks and vulnerability, and also identify the different perceptions of the antecedents of trust in asymmetrical business-to-business relationships between food producers and retailers".

Due to different research approaches, 'trust' is often conceptualized differently by different authors. Some authors distinguish two basic dimensions of 'trust', inter-organizational trust and inter-personal trust (Rousseau *et al.*, 2008; Jones *et al.*, 2010; Lu *et al.*, 2012). Inter-organizational trust is the collective trust of the agents of an organization towards the partner organization. It operates as a governance mechanism that mitigates opportunism in exchange contexts characterized by uncertainty and dependence. Inter-personal trust plays a key role in interfacing with counterparts when implementing marketing strategies. In operational terms, 'trust' refers to the belief that the other party is honest and sincere, and in no circumstance will it deliberately do anything to damage the relationship. Inter-personal trust significantly contributes to a high level of relationship satisfaction for agri-food SMEs in China (Lu *et al.*, 2012).

Laeequddin *et al.* (2010) noted that there are three key perspectives of trust in SC relationship: characteristic trust, rational trust, institutional trust. Characteristic trust deals with factors such as perceptions, reliability, dependability, credibility, commitment, honesty, benevolence, fairness, goodwill and emotions etc. Rational trust deals with factors such as economics of relationship, dynamic capabilities of partners and technology adoption. Institutional trust deals with factors such as control mechanisms between SC members through legal frameworks, commercial law, contracts, agreements, bank guarantees and insurance.

Sako (1998) identified three types of trust: contractual trust, competence trust and goodwill trust whose division in their research on trust in AFSCs, Masuku and Kirsten (2004) and Puspitawati *et.al.* (2011) highlight as relevant. Contractual trust gives answer to the question *Will the other party came out its contractual agreements?*, Competence trust answers to *Is the other party capable of doing what it says it will do?* and goodwill trust replies to *Will the other party make an open-ended commitment to take initiatives for mutual benefit while refraining from unfair advantage taking?*. Sometimes interpersonal trust is associated with goodwill trust (Jones *et al.*, 2010).

Lindgreen (2003) highlights 'trust' as an important strategic condition and as one of the main factors limiting successful collaboration in the FC. In his work he explores different types of trust and their implementation in the food industry and, according to Johnson and Grayson (1999), highlights four types of trust: generalized trust, system trust, process-based trust and personality-based trust. In addition to the above, there are some other categories of trust that depend significantly on the type of the SC (Hogart-Scott, 1999; Ghosh and Fedorowicz, 2008; de Almeida *et al.*, 2017, etc.).

FSCs are characterized by highly interdependent partnerships and a span of relationship types (Hogarth-Scott, 1999). Due to different characteristics of products (fresh, processed food) there are different structures of relations in an AFSC (e.g. farmer-processor; farmer-trader, processor-trader, etc.) or forms of management which significantly affect the determinants of trust (Batt, 2003a; Schulze and Spiller, 2006).

In the case of AFCs, both business relationships (e.g., prices, costs, and market) and social (e.g., local connections, trust, and friendship) relationships are considered vital to its success. Business relationships between farmers and processors in the selected German AFS have by and large the character of informal repeated market transactions (Reynolds *et al.*, 2009). Therefore, trust and satisfaction in AFSC are often highlighted as essential determinants of successful collaboration (Batt, 2003a; Schulze and Spiller, 2006; Aji, 2016). As the satisfaction of farmers increases, so does trust, which leads to a long-term commitment to the relationship (Aji, 2016).

According to Fischer *et al.* (2006), in the agricultural sector trust is more important for SMEs, which are characterized by the existence of personal relationships between business partners. Research by Reynolds *et al.* (2009) showed that trust is the most important sustainability indicator in young relationships while it is a collaboration history in the mature ones. This indicates that building trust is crucial at the beginning of a collaboration, and this can be achieved through effective communication and the development of personal

connections. Growth of trust largely depends on positive experiences of collaboration, which should develop over time. However, if a country's general economic situation is difficult, or if economic power is unevenly distributed (which is often the case in AFSCs where retailers dominate most of the chain) trust in more powerful partners may be undermined or limited.

Different literature shows diverse antecedents of trust within AFSCs. Thus, Batt (2003a) identifies the perceived honesty, credibility of information, reliability of promises, satisfaction with relation, goal compatibility, and investments in relation as trust generating factors in the Australian fresh produce chain. Puspitawati (2011) states eight antecedents of trust in AFSCs: communication, price transparency, price satisfaction, price quality ratio, joint problem solving, partner reputation, dependency and flexibility in the relationship. Schulze and Spiller (2006) and Fritz and Fischer (2007) agree that the most important determinants of trust in AFSCs are the quality of communication achieved through the frequency of communication and the quality of information, along with the experience of collaboration. Personal relationships do not affect trust equally in all SCs, but they are very important for developing trust in AFSCs. Regardless of different studies and the definition of different antecedent factors of trust, it is important to emphasize that the determinants of trust are significantly influenced by the specifics of the observed sector and the AFSC, and should be carefully selected as this can significantly affect the measurement of trust in the AFSC.

2.3.3. Performance

SC performance measurement is the process of qualifying the efficiency and effectiveness of the SC and it has been recognized as a problem in its practical development (Sillanpää, 2015) as it mainly depends on the special characteristics of the SC. Wankhade's *et al.* (2018) literature review outlines various theoretical frameworks, approaches, classifications of SC performance measures and performance indicators. There is a high number of performance indicators in practice: costs, quality and competitiveness (Suvanto, 2012; Hartmann *et al.*, 2015); resource utilisation; flexibility; visibility; trust; and innovativeness (Chan, 2003); operational performance, customer satisfaction and financial performance (Truong *et al.*, 2016), in addition to the above and market growth (Stuart *et al.*, 2012); employed cost, flexibility, response, delivery, and financial performance (Topal and Sahin, 2018).

Diversity, complexity and specific features of AFSCs, and continuous changes in the business environment affect the way an AFSC is coordinated, controlled and managed. Hence, successful AFSCM also requires effective management of the AFSC performance, i.e.

determine the essential factors that enable their measurement. An AFSC is considered efficient if the activities, operations and its processes reduce overproduction, remove stocks that are no longer needed, minimize operational stocks, streamline the movement of the chain, eliminate downtime or detours to reduce waiting time, reducing till eliminating waste and non-compliant items (Dinu, 2016). Due to the AFSC's specifics in measuring trust and its impact on performance, it is difficult to measure the classic performance indicators used for assessing non-FSCs (Laeequddin *et al.,* 2010; Stuart *et al.*, 2012). The performance measurement systems and their indicators in AFSCs are complex due to their specific characteristics (Van der Vorst 2000; Aramyan *et al.*, 2006). Significant gaps in the measurement systems/frameworks and their suitability for AFSCs have been identified. For example, the current measurement systems often fail to emphasise the specific aspects like food quality, food safety and risk.

The measurement of the FSC performance has recently attracted a lot of research interest (Bourlakis *et al.,* 2012; Odongo *et al.*, 2016; Mesic *et al.,* 2018; Moazzam *et al.,* 2018; Kataike *et al.,* 2019). In their study Moazzam *et al.* (2018) examined the implementation of measurement models of other SCs measuring AFSC performance and risk. They used the following 5 criteria: financial and non-financial indicators; holistic to entire SCs; food quality focus; risk assessments; and environmental sustainability, in order to evaluate the existing performance measurement frameworks and choose those appropriate for AFSCs. Bourlakis *et al.* (2012) assessed the performance of the AFSC based on four competitive priorities (cost, speed/ability to deliver, flexibility, product quality. Aramyan *et al.* (2006) group the AFSC performance into four main categories: efficiency; flexibility; responsiveness and food quality. Efficiency aims to maximize value added by the process and minimize the cost absorbed in inventories. It includes several indicators, but the most commonly used are costs, profit, return on investment (ROI) and inventory (inventory investments, inventory obsolescence). Flexibility indicates the degree to which the SC can respond to a changing environment and includes customer satisfaction and reductions in the number of backorders, lost sales and late orders. Responsiveness aims at a high level of customer service and may comprise fill rate, product lateness, customer response time, lead-time and shipping errors. Food quality is connected to the product quality and process quality.

As 'collaboration' and 'trust' can facilitate the efficiency of the AFSC, it is crucial to enhance the performance of not only the individual members in the SC but of all its participants as a whole. Namely, the achievements and competitiveness of the entire SC depends on the resilience of its weakest link (Trienekens et al., 2012). Collaboration in the SC can be increased by sharing information, resources and risk. Again, 'trust' plays the key role here: not only is it

vital that those factors are shared mutually, but it is also essential to understand that the distribution of the financial component, which is generated by collaboration, depends on trust (Kache and Seuring, 2014).

2.3.4. Conceptual model of CTP in AFSC

The CTP model consists of 'collaboration', 'trust' and 'performance', and their interconnectedness. Trust is one of the prerequisites for collaboration that develops through collaboration. Being the central component and a prerequisite for collaboration, it also reciprocally thrives through collaboration, especially long-term collaboration. Willingness to collaborate affects trust and *vice versa* (Amentae *et al.*, 2018). Trust is a key factor for the development of long-term collaboration, and it has the effect of strengthening trust between partners. Thereby the impact of collaboration and trust on the performance is significant.

The analysed papers supported the role of collaboration and trust in different AFSCs, and their impact on financial and non-financial performance. However, the analyses focused mainly on the relationships between two of the three variables, eg. impact of collaboration on trust, trust on collaboration, or trust on performance. Our conceptual model (**Figure 2.2.**) shows interfaces among CTPs and AFSCs.

Figure 2.2. Conceptual model of CTP in AFSC

In this model, trust is the central component of the AFSC as it influences collaboration, and *vice versa*. Willingness to collaborate will affect the development of trust, while without trust collaboration between partners in the chain cannot be developed. Therefore, trust is considered to be a mediator for enhancing supply chain performance. A similar model was analysed by Amentae *et al.* (2018) and Lobo *et al.* (2013) but without showing the mutual interaction between C and T. Accordingly, the model shown in the figure was developed.

The presented model can be explained in more detail based on previous research. Explaining the concept of 'the ladder of collaboration', step-wise improvement of SC performance through collaboration, Kampstra *et al.* (2006) considers that the initial level of collaboration is 'communication' assuming no prior collaboration, but the existence of trust cannot be present here yet. The level of trust a farmer places in his/her customer develops and

grows over time and is largely based on positive previous experience. For farmers, trust is the key foundation on which a relationship develops (Vlachos and Bourlakis, 2006). Trust emerges after positive personal experiences and requires prior engagement (Luhmann, 2000). This means that trust between partners in a chain does not occur automatically (Batt and Rexha, 2000). Decision makers on both sides must first be convinced of the ability, reliability and integrity of the other partner (Ganesan, 1994). Even when repeat business is expected, if there is to be a meaningful long-term relationship, the buyers and sellers concerned must learn to trust the other party to meet their obligations (Hakansson *et al.*, 1977; Hallén *et al.*, 1991; Morgan and Hunt 1994).

All this means that positive experience with a channel partner breeds trust (Batt and Rexha, 2000). Trust in a business partner is influenced by positive past collaboration and effective communication. However, Fischer (2013) points out that the existence of personal connections is also very important when it comes to developing trust among the AFSC actors. The study by Mutonyi *et al.* (2016), shows that the trust between producer and customer is a strong mediator between price satisfaction and producer loyalty, thus supporting other studies on trust and its mediating role. Trust develops through long-term orientation, which means that partnerships between the SC members are designed to last long term, and the SC members work together to reduce uncertainty and create competitive advantages among the SC members (Chen *et al.*, 2004; Lees and Nuthall, 2015). Trust fosters long-term relationships (Ganesan, 1994), reduces opportunistic behaviour (Morgan and Hunt, 1994), and increases the competitiveness and the performance of SCs. Collaboration and trust can significantly affect the effectiveness of AFSCs with the latter being the critical determinant of a good buyer-seller relationship (Batt and Rexha, 2000). Given the above, we can conclude that trust is the central component of AFSCM and an important mediator between collaboration and AFSCM performance.

2.4. Methodology

A systematic literature review (SLR) was conducted by focussing on those papers that investigate ‘collaboration’, ‘trust’ and ‘performance’ in AFSCs. The SLR is often used as a reliable model of literature research in examining the area of management (Luo *et al.*, 2018; Seuring *et al.*, 2020) and may offer detailed insights into the research topics. Thereby, the suggestions by Fredriksson and Liljestrand (2015), Ali *et al.* (2017), Routroy and Behera (2017), Prakash (2018), Dania *et al.* (2018), Luo *et al.* (2018) were followed. The SLR is

systematic, transparent, replicable, and succinct, i.e. a scientific process that applies structured steps to achieve the aim of the research (Tranfield *et al.*, 2003; Dania *et al.*, 2018).

At the beginning of the research process, the research area and research topic were defined, and a research question was developed and applied in order to conduct detailed content review and analysis by the recommendations of Denyer and Tranfield (2009), Durach *et al.* (2017) and Ülgen *et al.* (2019) for the literature search, study selection and evaluation. The procedures applied in this study were modelled according to those commonly used in other SLRs, with certain adjustments and additions due to the specific features of the research area, the issues that occurred during the research, and the transparency and clarity of the process.

In order to collect the relevant literature, the SLR process was carried out in seven steps (**Figure 2.3.**): (1) defining the research area and research question, (2) locating literature, (3) conducting search strings and the selection process, (4) performing study selection and evaluation, (5) content analysis and synthesis of 137 papers, (6) developing frame of reference, (7) exposition of the main findings, discussion and future research ideas.

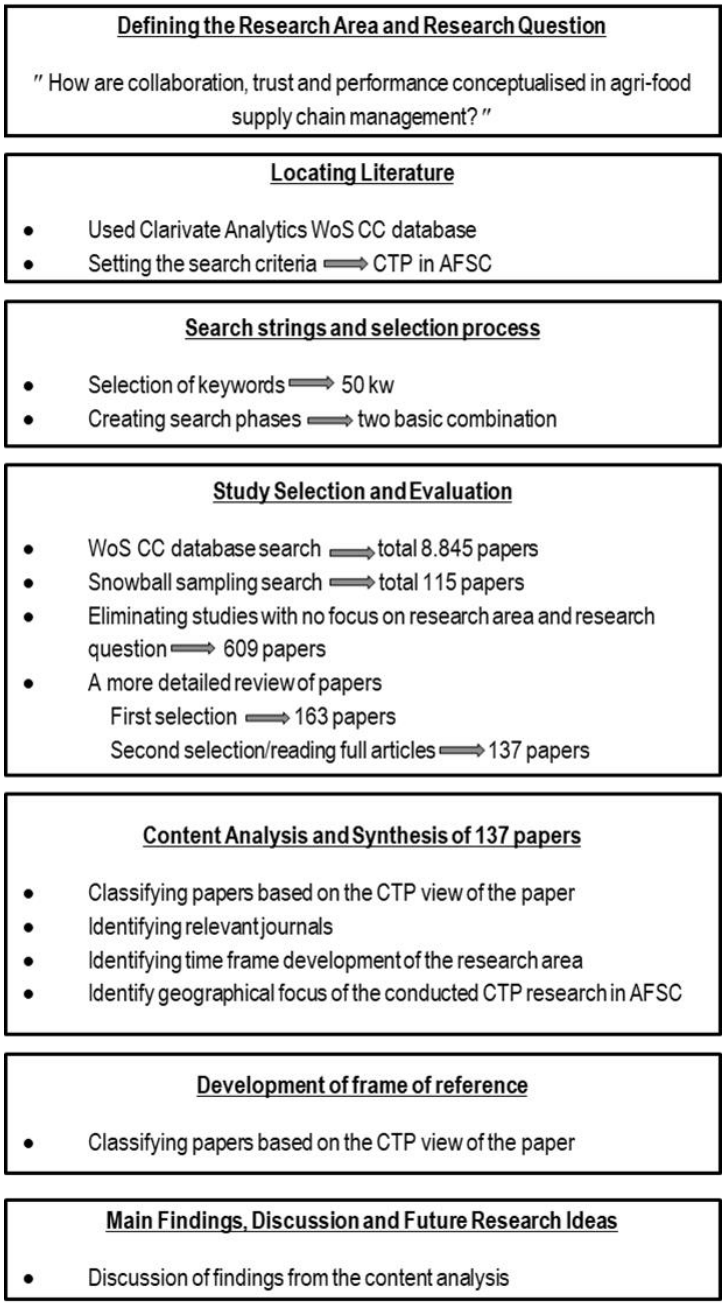

Figure 2.3. Systematic literature review process

The main advantage of the research method applied in this study is its specific approach to collecting and selecting papers for further analysis. The first step in SLR is defining the range of the study (Booth *et al.*, 2012) by avoiding vagueness and formulating the research question (Rousseau *et al.*, 2008; Wong *et al.*, 2015; Ali *et al.*, 2017).

The next step is to locate the relevant literature by identifying a search database and search strings. For the purpose of systematic literature review, this paper used Clarivate Analytics Web of Science Core Collection (WoS CC) database to identify peer-reviewed journal papers. In addition, several search strings were conducted on the basis of keyword

selection. Keyword search is a useful procedure for providing objectivity and repeatability of the procedure/location of papers for SLR (De Oliveira *et al.*, 2016). The area of SLR included qualitative and quantitative scientific papers about CTP in AFSC. In order to identify the literature relating to 'collaboration', 'trust' and 'performance' in AFSCs, the criteria for study selection and evaluation have been developed.

In the context of this research, and modelled on the scientific research process carried out by Dania *et al.* (2018), the concepts of 'collaboration', 'trust', and 'performance' (CTP) were searched in the papers that terminologically defined FSCs, such as 'food supply chain', 'food supply chain management', 'agri-food chain', 'agri-food supply chain management', 'perishable food supply chain', 'organic food supply chain', 'short food supply chain', and others. The comprehensive analysis of the relevant references by Rousseau *et al.* (2008) has added value to the research field. According to Delbufalo (2012), the papers that contain the terms 'collaboration', 'trust', or 'performance' as the basic main words included in the title, key words, or the abstract. Some research papers also included other words that are key for collaboration in SCs, such as power, loyalty, trustworthiness, commitment, relationship marketing, relationship quality, and others. The relevance of the selected papers that do not include 'collaboration', 'trust', or 'performance' (CTP) as primary key words was established under the condition that they contain at least one of the other key words stated in **Appendix A Table 2**. A detailed description of the conducted methodological approach can be seen in **Appendix A Table 3**.

2.5. Sample characterisation

2.5.1. Distribution of papers per journal and time

Our results show that the academic debate on CTP in AFSC was unevenly developed between 1996 and 2020 (**Figure 2.4.**). The highest number of papers, thirteen, were published in 2018 while only one article per year was recorded in 1996, 1997 and 1998, and only two from 2000-2002. One article was published in 2020, but the final score is expected to increase since the search for papers concluded in September 2020. The number of papers rose significantly in the second half of the researched time frame, except for the years 2007 and 2008 which were marked by a steep intensification in publishing on the topic (10 and 11 respectively). In 2009 and 2013 there were 8 papers and in 2010, 2012 and 2014 seven. In 2015 four papers were published, in 2016 six, and in 2017 nine papers came out. The results show striking fluctuations in the interest of the academic community in CTP in AFSC, but the most

productive year was 2018 when researchers focused predominately on collaboration within AFSCM

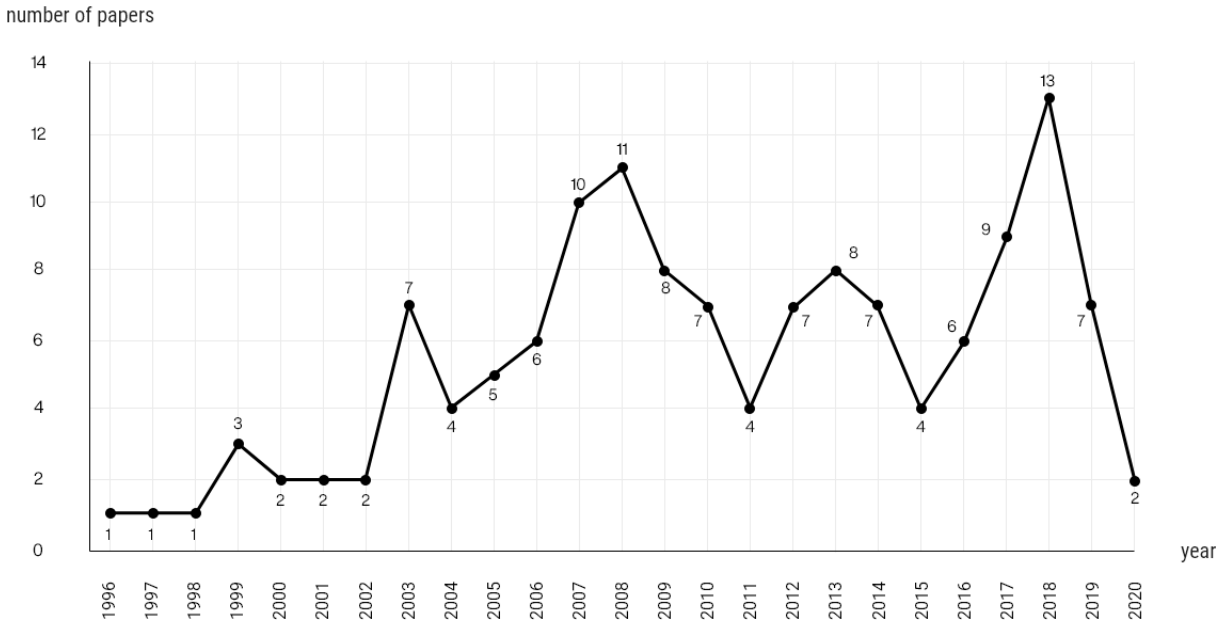

Figure 2.4. Chronological distribution of the papers

Among the most prominent cited journals are the *British Food Journal* (*BRIT FOOD J*) with 22 papers on the topic and *Supply Chain Management: An International Journal* (*SUPPLY CHAIN MANAG*) with 18 papers on the topic. It has also been noted that the first research on the topic appeared in *AGRIBUSINESS*. Ten papers per journal were released in *Journal of Chain and Network Science* (*J. CHAIN NETW. SCI.*), followed by *International Food and Agribusiness Management Review* (*INT FOOD AGRIBUS MAN*), *AGREKON* (6 papers), four in *Industrial Marketing Management* (*IND MARKET MANAG*) and *Journal of International Food & Agribusiness Marketing* (*J. INT. FOOD AGRIBUSINESS MARK.*). Other papers were less represented in journals (**Figure 2.5.**).

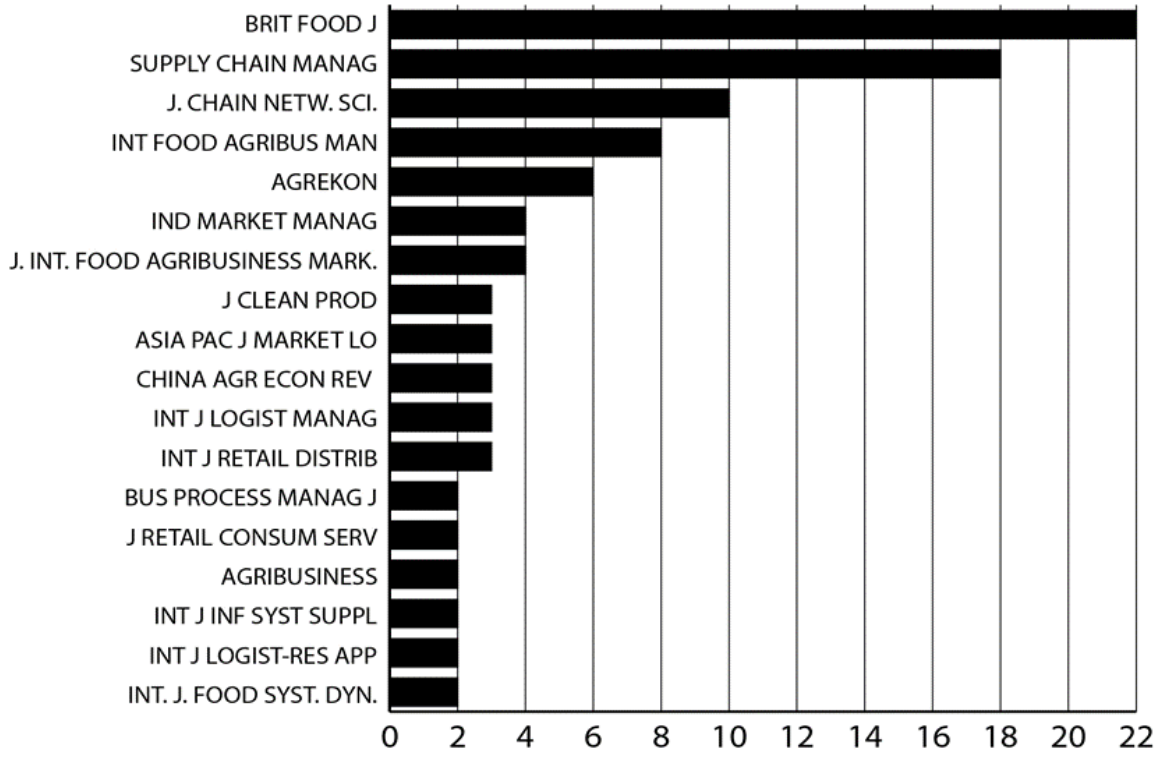

Figure 2.5. Distribution of papers by journals

2.5.2. Applied research methods

Regarding the methodological background of the examined papers (see also our comprehensive overview in **Appendix A Table 4.**), the majority of them are empirical qualitative studies (59), quantitative studies (43), combinations of empirical quantitative and qualitative study (20), and conceptual approach papers (15) including those with SLRs. The majority of papers in our sample apply qualitative and quantitative research methods and instruments including questionnaire (63), different forms of interviews, such as interview guide (41), semi-structured interviews (10), personal or group interviews (11), in depth interviews (3) or a combination of the above mentioned and case studies (13). In terms of the applied methods of research analysis, the most used were descriptive analysis (45), followed by factor analysis (either exploratory or confirmatory) (28), partial least squares (PLS) structural equation model (SEM) (25), regression analysis (12), Cronbach's alpha (8), content analysis (5), cluster analysis (5), and various other methods to a lesser extent.

2.5.3. Geographical distribution

Most of the research publications discuss various topics related to FSC or AFSC in developed countries (see **Figure 2.6.**).

Figure 2.6. Geographical focus of the conducted CTP research in AFSCM

Our results show that academic discussions were geographically focused on the EU countries (64), more specifically the UK (28), Germany (11), Italy (8), Finland (8), Greece (7) etc., while a number of papers included coverage of several EU countries (Gellynck *et al.*, 2008; Ameseder *et al.*, 2008; Fischer *et al.*, 2009; Molnár and Gellynck, 2009; Hofstede *et al.*, 2010; Naspetti *et al.*, 2011 etc.), followed by Asian countries (26), such as China (8), India (6), Malaysia (4), etc. Twenty-two papers were directed geographically towards African countries, 14 on the Americas (both North and South) and 10 on Australia. Insufficient attention is still paid to the relationship quality (RQ) among the chain actors in AFSCs in the developing countries, and there is a lack of research on the subject in spite of the fact that those countries, like India, are still predominantly agrarian.

2.5.4. Specific types of the SCs

We divided SCs into specific types, based on the studied sector (e.g. agri-food chain, food industry, retail) and categories (fresh/processed/organic ect.) which is shown in **Figure 2.7**.

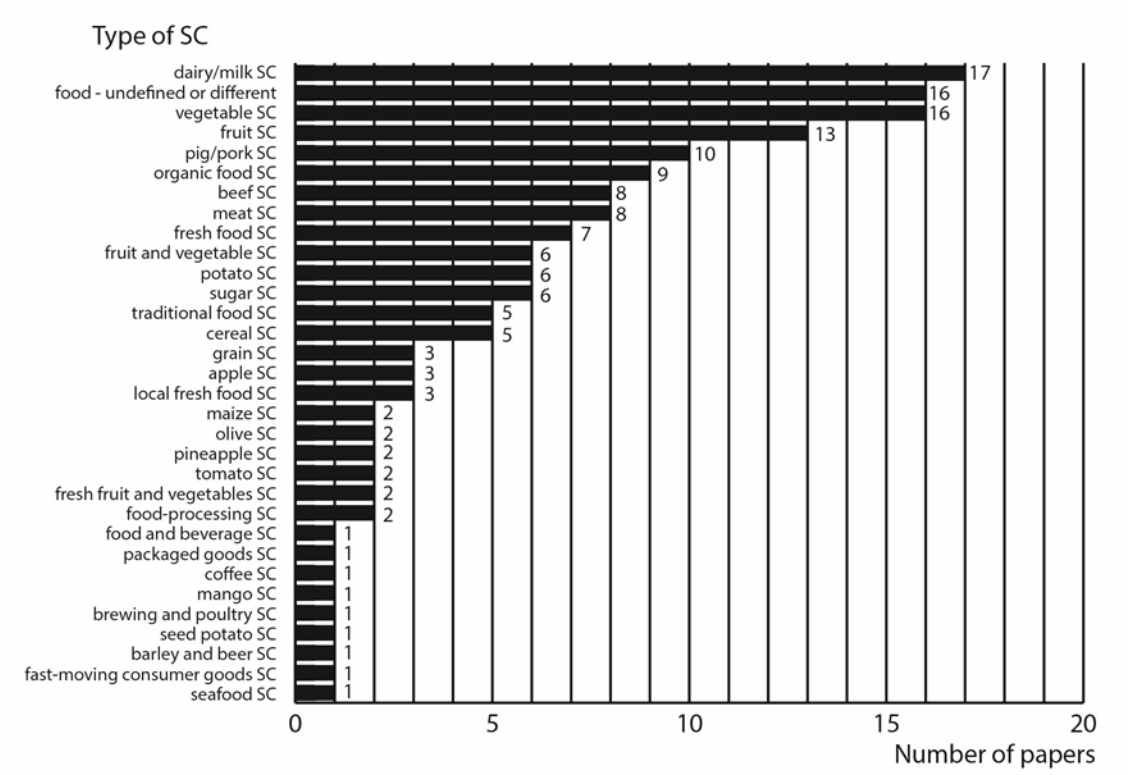

Figure 2.7. Type of the SC analysed

The following AFSCs have been noticed to attract the most research: dairy / milk SC, vegetable SC (16), fruit SC (13), pig / pork SC (10), organic food SC (9). It was also observed that only 9 papers elaborated on the research of the relationships in organic food supply chains, which indicates the need to intensify the studies in these chains, given that organic agri-food production is gaining more and more importance today.

2.6. CTP in analysed research papers

2.6.1. CTP view of the paper

For the further analysis of the sample, the focus will be on those 122 papers which include empirical research. Out of them only 3 papers combine all three aspects of CTP and they all present the individual perceptions of individual members of the chain are presented, 37 papers capture a combination of the two aspects of CTP, while the remaining 82 papers refer to one element of our CTP-framework.

As outlined in **Figure 2.8.** it is obvious that most of the studied papers are trust-oriented (44), performance-oriented (21), and collaboration-oriented (17).

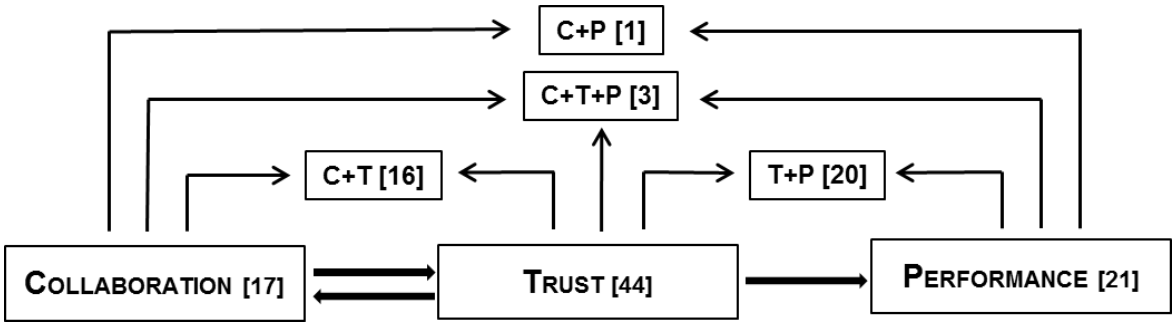

Figure 2.8. Collaboration, trust and/or performance-oriented views of the paper

The analysed papers also include those that deal with two KW in parallel. Thus, 'collaboration' and 'trust' occur in 16 papers, 'trust' and 'performance' in 20, 'collaboration' and 'performance' in 1, and three paper incorporated all three KW (Naspetti *et al.*, 2011; Nakandala and Lau, 2019; Amentae *et al.*, 2018). This is not unusual as previous research confirms that the RQ between partners influences a firm's operational performance in SCs (Molnár *et al.*, 2010; Bandara *et al.*, 2017). Benton and Maloni (2005) also agree that the relationship success yields improvement in SC performance. Collaboration and trust between the SC actors, among other factors, are crucial for RQ in AFSCs (such as power, commitment, information sharing, satisfaction and others), and play an important role in achieving high performance, as between individual chain actors, and in the entire SC (Matopoulos *et al.*, 2007; Kühne *et al.*, 2013; Odongo *et al.*, 2016; Mesic *et al*., 2018).

One of the reasons for smaller numbers of papers dealing with measuring the performances of SCs lies in the fact that the researchers encounter great difficulties when measuring their operational performance and factors which influence their performance (Banerjee and Mishra, 2017; Bandara *et al.*, 2017). There are challenges in identifying the appropriate performance measures for the analysis of SCs (Arzu Akyuz and Erman Erkan, 2010). Guersola *et al.* (2018) indicating that empirical studies on chain performance are still immature, recommending further empirical evidence on the perceived chain performance among the chain members. Also, in addition to the usual financial indicators in an AFSC, researchers started analysing the non-financial indicators, such as efficiency, flexibility, food quality and safety, level of losses, responsiveness, etc. (Aramyan *et al.*, 2006; Amentae *et al.*, 2018; Jie and Gengatharen, 2019; Kataike *et al.*, 2019). Besides that, measuring the performance of AFSCs is rather difficult due to the numerous characteristics that set them apart from other types of the SCs (Aramyan *et al*., 2007).

Further, the used definitions of CTP were analysed as well as key concepts in order to understand the knowledge and relationships lying beneath these relations. 'Trust' was cited in

48 papers (35%) by 59 authors. The most frequently used definitions for 'trust' dated from the beginning of the 20th century and the authors were more general in defining and examining this notion at the organisational level among the exchange partners (Anderson and Narus, 1990; Moorman *et al.*, 1993; Morgan and Hunt, 1994; Mayer *et al.*, 1995; Doney and Cannon; 1997, etc.). According to them trust is mostly defined as "belief that its exchange partners are honest and that an exchange partner will not exploit other party's vulnerabilities". According to these definitions, trust can be operationalised using constructs such as reliability, credibility, integrity, benevolence, and competence. Later published papers contextualise 'trust' in SCs and closely connect it with collaboration and commitment incorporating the specifics of FSCs and AFSCs. Panayides and Lun (2009) found "trust to be a significant predictor of positive performance in business relationships". Kottila and Rönni (2008) believe that trust is the "…driving factor towards commitment and subsequently successful collaboration". Simpson and Power (2005) claim that "trust between SC partners has been identified as a critical relational mechanism for collaboration", while Kamalahmadi and Parast (2016) consider it to be the key determinant of 'collaboration'. For Cai *et al.* (2010) "trust is a vital issue in buyer–supplier relationships, it influences both information sharing and collaborative planning". Hamzaoui-Essoussi *et al.* (2013) state that in complex food markets, 'trust' is an essential element that can facilitate decision making, citing Green *et al.* (2005) who connected 'trust' with food safety adding that particular information sources and organisations that are trusted to either provide safe food or to provide trustworthy information.

The analysis has yielded much fewer definitions for 'collaboration', and even fewer for 'performance'. The former keyword was cited in 12 papers (9%) by 19 authors while the latter was mentioned in six papers (3%) by seven authors. In addition, a significant number of papers that contain a CTP keyword in the title, abstract and/or keywords do not offer definitions (Batt, 2003a; Fearne *et al.*, 2006; Vlachos *et al.*, 2008; Bezuidenhout *et al.*, 2012; Singh *et al.*, 2013; Odongo *et al.*, 2016; Susanty *et al.*, 2017). This is one of the research implications and important suggestions for further research of this topic.

2.6.2. Analysis of relationships in AFSC

The analysed papers investigated the relationship, specifically the CTP between different chain actors within different AFSC structures. As explained at the beginning of the paper, the AFSC can be short or direct SC, and consists of two to three chain members, but it can also include a larger number of chain actors. It can start with the primary agri-food supplier and finish with the consumer, but also only some members of the chain can be included in the

analysis, for example, the relationship between primary agri-food producer and agri-food processor. Accordingly, different authors have explored different relationships between different chain members.

Some authors in their research have tried to extend the unit of analysis to the whole SC, but this does not necessarily mean involving a whole chain approach. A whole chain approach would imply that research was conducted on all chain actors. For example, we could underscore several papers where the attitudes of four to five chain actors were investigated (Batt 2003c; Lindgreen *et al.*, 2005; Aramyan *et al.*, 2007; Amentae *et al.*, 2018; Jacob-John, 2018). However, according to Masuku (2003), when a unit of analysis is extended from a dyadic relationship to a whole SC, sampling becomes a problem. Therefore, it is not surprising that in such papers individual perceptions (**Figure 2.9.**) of individual members of the chain about the relationship with some other chain actors dominate.

Some authors use the term dyadic relationship (Mena *et al*., 2009; Maglaras *et al*., 2015), but this term does not always imply research of the dyadic interface (Hingley, 2004). However, in most cases, it is about the individual perception of one member of that dyad. Individual perception in a dyadic relationship involves separately measuring the attitudes of one or both actors in a dyad. A dyadic interface implies interaction (both sides) between the known / named actors in the dyadic relationship which leads to interdependence in their behaviour and perception of their interpersonal relationship (**Figure 2.9.**).

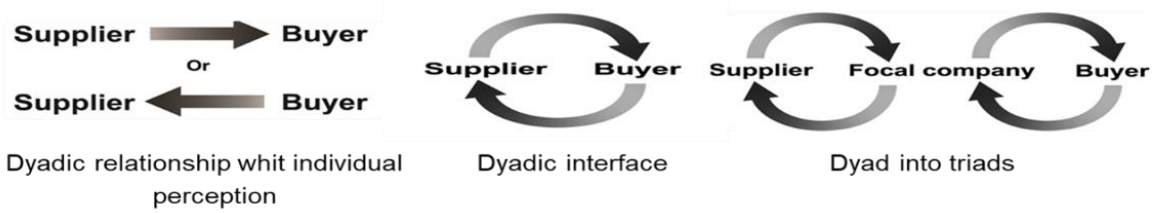

Figure 2.9. Possible units of analysis

A thorough content analysis of the papers found that in only nine of them a dyadic interface was used as a unit of analysis taking into account the two chain members' perceptions about each other. The greatest contribution to the AFSCM dyadic interface research was made by Higley in five papers. According to Odongo *et al.* (2016) to fully understand the relative behaviour of a firm embedded in a SC, we need to look beyond the dyad into triads (**Figure 2.9.**). Consequently, in past ten years, with more intensive focus in AFSC on 'performance', this approach was more accepted among researchers (Molnár *et al.*, 2010; Gellynck *et al.*, 2011;

Odongo *et al*., 2017; Mesic *et al*., 2018; Kataike *et al.*, 2019). Namely, it allows a better understanding of the relationship among the three directly related companies working together in the SC, consisting of the focal company, the supplier and the customer involved in upstream and / or downstream flows in relation to the focal company. The dyad interface, downstream and upstream with respect to the focal company are explored. However, only 8 papers with such research methodology were found in this systematic literature review. In other words, in most of the analysed papers (about 86%) the individual perception of individual AFSC members was researched.

Since the AFSC network often consists of different interconnected actors, it is almost impossible to define all possible SC structures. Our SLR yielded about 46 different AFSC structures that were further analysed by classifying them into 9 basic relationships according to the type of actors and the part of the chain that was researched. These relationships are positioned in the ultimate chain as follows:

- **R1** – represents relationships between primary agri-food suppliers (PAFS) and primary agri-food producers (PAFP), and further downstream;
- **R2 –** expresses relationships between PAFP and agri-food processors (AFP);
- **R3 –** represents different relationship structures between PAFP, AFP of a trader (distributor or wholesaler), and ends with food retailers (FR);
- **R4 –** defines direct PAFP relations with a trader (distributor or wholesaler), and ends with food retailer (FR);
- **R5 –** expresses PAFP and AFCoop relationships;
- **R6 –** mainly refers to relationships between AFP and FR while some relationships involve a trader, such as food agents or food exporters, or relationships between AFP with other undefined SC members;
- **R7 –** represents different kinds of food suppliers (FSs) and food retailers (FRs) or FSs and different kinds of food processor (FP) relationships;
- **R8 –** are relationships between different stakeholders in international or global food SCs;

- **R9** – refer to all other, unaffiliated chain structures such as B2B relationships in agri-food chains or food retailers and their upstream and downstream actors' relationships.

Table 2.1. summarises the research results based on those relationships as well as their key characteristics (for a further detailed analysis is available in **Appendix A Table 4.**)

Table 2.1. Different relationship structures due to the different chain actors in the AFSC

Unit of research/relationship	Chain actors	SC level	Author(s)	CTP
	R1 (3 papers)			
Primary agri-food supplier and primary agri-food producer relationship	>primary agri-food producer	>individual perception	*Batt (2003b)*	T
			Aji (2016)	T
Primary agri-food suppliers, agri-food producer, food distributors and food retailers relationship	>primary agri-food suppliers, agri-food producer, food distributors and food retailers	>individual perception	*Cunha Callado and Jack (2017)*	P
	R2 (17 papers)			
Primary agri-food producer and agri-food processor relationship	>primary agri-food producer and agri-food processor	>individual perception	*Tregurtha and Vink (1999)*	T
			Higgins et al. (2007)	T
			Matopoulos et al. (2007)	C+T
	>primary agri-food producer	>individual perception	*Masuku et al. (2003)*	T+P
			Masuku and Kirsten (2004)	T+P
			Schulze et al. (2006)	T
			Masuku et al. (2007)	T
			Boniface et al. (2010)	T
			Puspitawati et al. (2011)	T
			Boniface (2012)	T
			Boniface et al. (2012)	P
			Schulze-Ehlers et al. (2014)	C+T
			Gorton et al. (2015)	T+P
			Mutonyi et al. (2016)	T
			Brooks et al. (2017)	T
			Rota et al. (2018)	C
	>food processor	>individual perception	*Ji et al. (2012)*	C
	R3 (28 papers)			
Primary agri-food producer, agri-food processor and food retailer relationship	>primary agri-food producer, agri-food processor and food retailer	>individual perception	*Fearne (1998)*	C+T
			Lindgreen (2003)	T
			Simons et al. (2003)	P
			Fritz and Fischer (2007)	C+T
			Gellynck et al. (2008)	P
			Fischer et al. (2009)	C+T
			Reynolds et al. (2009)	C+T
			Taylor and Fearne (2009)	C
			Suvanto (2012)	T
			Fischer (2013)	C+T
			Uddin (2017)	T+P
	>primary agri-food producer	>individual perception	*Leat and Revoredo-Giha (2008)*	T
	>primary agri-food producers, agri-food	>dyad into triads	*Molnár and Gellynck (2009)*	P

	processors and food retailers		*Molnár et al. (2010)* *Gellynck et al. (2011)* *Kühne et al. (2013)* *Mesic et al. (2018)*	T+P C+T C+T T+P
Primary agri-food producer, food processor or a wholesaler (focal firm) and food retailer relationship	>primary agri-food producer, food processor or a wholesaler (focal firm) and food retailer relationship	>dyad into triads	*Odongo et al. (2016)* *Odongo et al. (2017)*	T+P P
Primary agri-food producer, food processor, food distributor and food retailer relationship	>primary agri-food producer, food processor, food distributor and food retailer	>individual perception	*Lindgreen et al. (2005);* *Naspetti et al. (2011);* *Fischer et al. (2007)*	T C+T+P T
Primary agri-food producer, food processor, food retailer, food catering relationship	>primary agri-food producer, food processor, food retailer, food catering	>individual perception	*Bourlakis et al. (2014)*	P
Primary agri-food producer, food processors and other upstream and downstream stakeholders relationship	>primary agri-food producer, food processors and other upstream and downstream stakeholders	>individual perception	*Bezuidenhout et al. (2012)* *Chopra et al. (2017)* *Msaddak et al. (2017)*	C P T
Primary agri-food producer and food processor and exporter relationship	>primary agri-food producer and food processor and exporter	>individual perception	*Lu et al. (2008)*	T+P
Primary agri-food producer and multinational food companies	>primary agri-food producer and multinational food companies	>individual perception	*Touboulic and Walker (2015)*	C
	R4 (27 papers)			
Primary agri-food producer and food retailer relationship	>primary agri-food producer and food retailer	>individual perception	*Kottila and Rönni (2008)*	C+T
	>primary agri-food producer and food retailer	>dyadic interface	*White (2000)* *Blundel and Hingley (2001)* *Hingley (2005b)* *Hingley (2005c)* *Hingley et al. (2006)* *Hingley et al. (2008)* *Viitaharju and Lähdesmäki (2012)*	T T T C+T C T
	>primary agri-food producer	>individual perception	*Duffy and Fearne (2004a)* *Duffy and Fearne (2004b)* *Coronado et al. (2010)* *Lobo et al. (2013)* *Sahara and Gyau (2014)* *Sun et al. (2018)*	T+P T+P P C+T+P T T
Primary agri-food producer, food wholesalers and food retailers relationship	>primary agri-food producer, food wholesalers and food retailers	>individual perception	*Anastasiadis and Poole (2015)*	C
	>growers, sales organisations , organic wholesaler and retailers	>individual perception	*Zander and Beske (2014)*	C+T
Primary agri-food producer, food distributor, food wholesaler and food retailer relationship	>primary agri-food producer, food distributor, food wholesaler and food retailer	>individual perception	*Batt (2003c)* *Aramyan et al. (2007)*	T+P P
Primary agri-food producer, food wholesaler relationship	>primary agri-food producer and food wholesaler	>dyadic interface	*Bhagat and Dhar (2014)*	C+T
Primary agri-food producers, food distributors or wholesaler relationship	>primary agri-food producer	>individual perception	*Bandara et al. (2017)*	T+P
Primary agri-food producer and buyer relationship	>primary agri-food producer	>individual perception	*Zhang and Hu (2011)*	T
Primary agri-food producers and spot market buyers relationship	>primary agri-food producers	>individual perception	*Martins et al. (2019)*	P
Primary agri-food producer and the preferred market agent relationship	>primary agri-food producer	>individual perception	*Batt (2003a);*	T T

			Darroch and Mushayanyama (2006)	
Primary agri-food producer, food traders/distributors and other upstream and downstream stakeholders relationship	>primary agri-food producer, food traders/distributors and other upstream and downstream stakeholders	>individual perception	*Tröger et al. (2018)*	T
Primary agri-food producer, food retailer, and certified organisations relationship	>primary agri-food producer, food retailer, and certified organisations	>individual perception	*Hamzaoui-Essoussi et al. (2013)*	T
Food producers and food retailers relationship	>food producers	>individual perception	*Malagueño et al. (2019)*	P
	R5 (7 papers)			
Primary agri-food producer and agri-food co-operative relationship	>primary agri-food producer	>individual perception	*Nitschke and O'Keefe (1997)*	T
			Susanty et al. (2017)	T+P
			Montero et al. (2018)	P
			Msaddak et al. (2020)	C+T
Relationship among and between members of agri-food co-op	>agri-food cooperative (co-op)	>individual perception	*Hansen et al. (2002)*	T+P
Primary agri-food producers, food co-operatives and food processors relationship	>primary agri-food producers, food co-operatives and food processors	>dyad into triads	*Kataike et al. (2019)*	P
Primary agri-food producer, agri-food cooperative, food traders, food processors and food retailers relationship	>primary agri-food producer, agri-food cooperative,food traders, food processors and food retailers	>individual perception	*Amentae et al. (2018)*	C+T+P
	R6 (14 papers)			
Food processor and food retailer relationship	>food processor and food retailer	>individual perception	*Siemieniuch et al. (1999)*	T
			Vlachos and Bourlakis (2006)	C+T
			Vlachos et al. (2008)	C
			Mathu and Phetla (2018)	C+P
	>food processors	>individual perception	*Vieira et al. (2009)*	C
			van der Werff et al. (2018)	T+P
			Eksoz et al. (2019)	T
			Puska et al. (2019)	P
Food processor, food agent, food processor and food retailer relationship	>food processor, food agent, food processor and food retailer relationship	>individual perception	*Fattahi et al. (2013)*	P
Food processor and food exporter relationship	>food processor	>individual perception	*Lu et al. (2012)*	T
Food processor and other SC members relationship	>food processor	>individual perception	*Jie et al. (2013)*	T+P
Food processors and agro-industrial sector relationship	>food processor	>individual perception	*Palacios-Argüello et al. (2020)*	C
Food processor, food supplier and food buyer relationship	>food processor	>individual perception	*Gagalyuk et al. (2013)*	T+P
Food processor and food supplier and food customer relationship	>food processor	>individual perception	*Ding et al. (2014)*	T+P
	R7 (10 papers)			
Food supplier and food retailer relationship	>food supplier and food retailer	>individual perception	*Dapiran and Hogarth-Scott (2003)*	C
			Ghosh and Fedorowicz (2008)	P
	>food supplier	>individual perception	*Fearne et al. (2005)*	C
			Maglaras et al. (2015)	C
	>food retailer	>individual perception	*Fearne et al. (2006)*	T+P
			Banerjee and Mishra (2017)	T
			Jie and Gengatharen (2019)	T+P

	>food supplier and food retailer	>dyadic interface	*Hingley (2004)*	T
Food supplier and food procesor relationship	>food supplier and food procesor	>individual perception	*Han et al. (2007)*	P
Food supplier, food processor and food retailer relationship	>food supplier, food processor and food retailer	>individual perception	*Kähkönen and Tenkanen (2010)*	C
	R8 (9 papers)			
Primary agri-food suppliers, primary agri-food producer, food traders/exporets, food retailers/importers relationship	>primary agri-food producer, primary agri-food suppliers, food traders/exporets, food retailers/importers	>individual perception	*Jacob-John (2018)*	C
Primary agri-food producer and food exporter relationship	>primary agri-food producer and food exporter	>individual perception	*Hardman et al. (2002)*	C+T
	>food exporter	>individual perception	*Gyau and Spiller (2007a)*	T
			Gyau and Spiller (2007b)	T
Primary agri-food producers-exporters and food importers relationship	>primary agri-food producers-exporters	>individual perception	*Gyau and Spiller (2008)*	P
			Gyau and Spiller (2009)	P
Food processor, food distributor and food retailer relationship within the global value chain	>food processor, food distributor and food retailer	>individual perception	*Vieira and Traill (2008)*	T
Relationship among different members of the international food distribution channel (importers, distributors, manufacturers, buyers)	>different international food distributon channel actors	>individual perception	*Knight et al. (2007)*	T
Food export and freight forwarder relationship	>food export and freight forewarder	>individual perception	*Glavee-Geo and Engelseth (2018)*	T
	R9 Others CS/ unaffiliated (7 papers)			
Food retailers and their upstream and downstream actors relationship	>food retailers	>individual perception	*Nakandala and Lau (2019)*	T
Food retailers and food consumers relationships	>food retailers, food consumers	>individual perception	*Singh et al. (2013)*	P
B2B relationships in agri-food chain	>food chain leaders and food chain business associations	>individual perception	*Ameseder et al. (2008)*	T
	>different members of agri-food sector	>individual perception	*Canavari et al. (2010);*	T
			Hofstede et al. (2010)	T
Chain 1:agri-food intermediary and food producer relationship; Chain 2: primary agri-food producer and primary agri-food supplier relationship	>Chain 1: agri-food intermediary and food producer >Chain 2: primary agri-food producer and primary agri-food supplier	>individual perception	*Mena et al. (2009)*	C
Three different food supply chains	>actors from three different food supply chains	>individual perception	*Mikkola (2008)*	C

2.6.3. Categorisation of papers with respect to research focus according to CTP

For the purpose of identifying different research interest according to the CTP focus, we analysed the papers and their conceptualisations, and categorised them acoording to the discussed context. Two researchers analysed the papers with respect to the CTP model and within the research focus. The result was: 13 different research topics for 'collaboration', 19 in the domain of ''trust', and 7 for 'performance' (**Figure 2.10.**). These categories were then assigned to the papers, as can be seen from **Appendix A Table 4**.

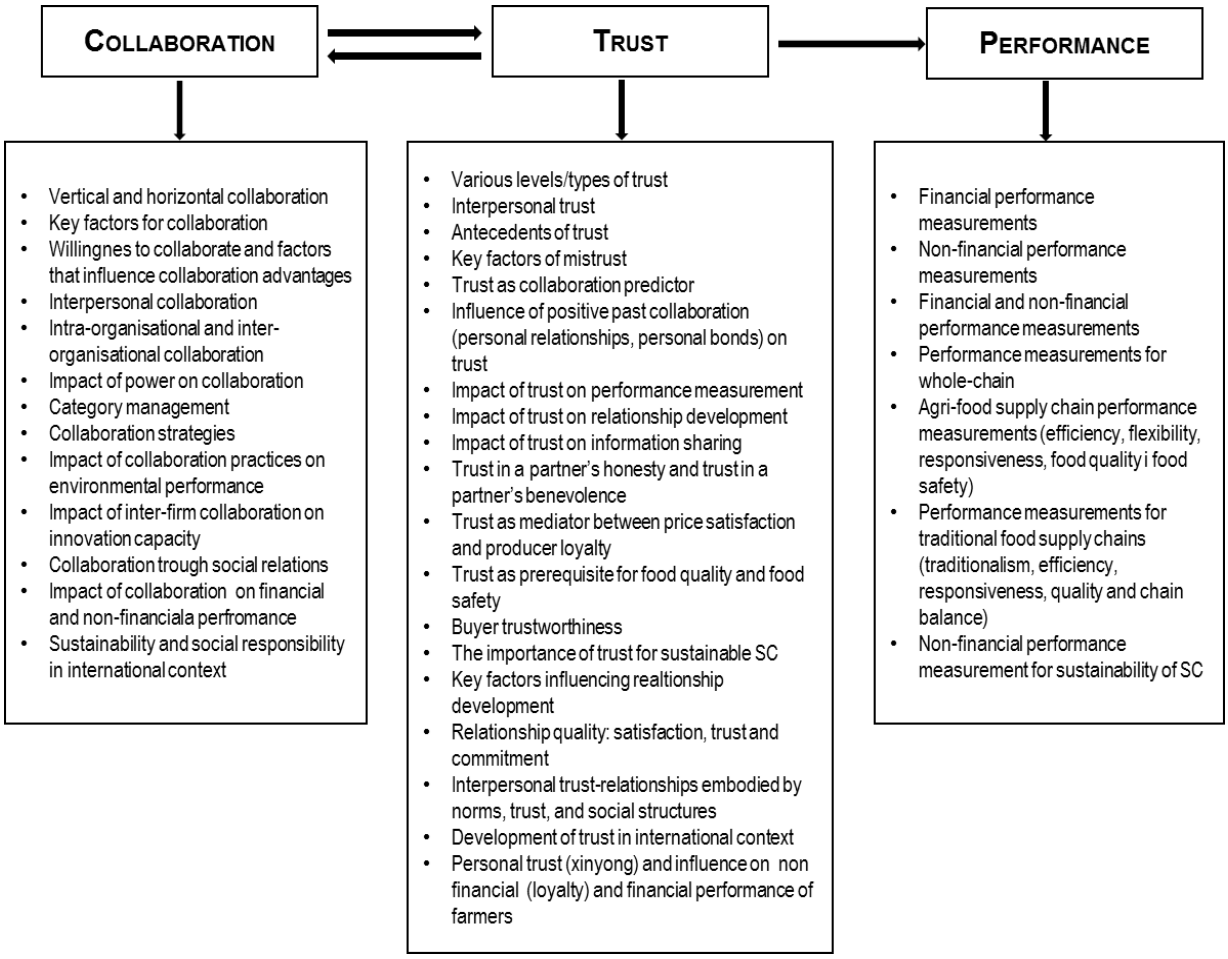

Figure 2.10. Research focus of the analysed papers according to the CTP view

Table 2.2. presents the analysis of the papers according to the interaction between 'collaboration' and 'trust' and/or 'performance' with respect to different relationship structures. The analysis is important to identify the focus of the research for the individual authors, the aspects observed in the field of collaboration, trust and performance, perception of actors in different relationship structure and the research interests they gave the most emphasis to. Furthermore, based on this analysis we could identify research interest of other authors with

respect to the CTP view of the paper and identify correlations of other authors researchers with our proposed conceptual model. This facilitated the key transmissions and future recommendations of the individual authors.

Table 2.2. Interface between CTP in different relationship structures

Interface between CTP	Research interest	Key takeaways	Future research recommendations
		R1	
Only one of the category is observed	>key factors of mistrust >antecedents of T >financial and non-financial P measurements	> CTP present in 3 papers; influence and interdependence between CTP not analysed	>increase research in this part of the AFSC >lack of P-related research in relationships
		R2	
C+T C ⟵ T 1. *Matopoulos et al. (2007)* 2. *Schulze-Ehlers et al. (2014)*	>key factors for C >key factors influencing realtionship development >impact of power on C >relationship quality	>impact of T on C >T seriously affects the intensity of C by limiting the depth and breadth of C	>intensify research in relationship >focus on AFP – higher significance of C over T >AFP should improve relationship; PAFP needs to better understand importance of AFP – enhance C PAFPs not perform business P financial analysis nor follow business results >intensifying research in financial P measurements
T+P T ⟶ P 1. *Masuku et al. (2003)* 2. *Masuku and Kirsten (2004)* 3. *Gorton et al. (2015)*	>impact of T on P measurement >non-financial P measurements >buyer trustworthiness	> impact of T on P shows mostly non-financial P addressed, e.g. satisfaction as qualitative measure	
		R3	
C+T C ⟵ T 1. *Fearne (1998)* 2. *Gellynck et al. (2011)* 3. *Kühne et al. (2013)*	>vertical and horizontal collaboration >relationship quality (satisfaction, trust and commitment) >T as C predictor	>impact of T on C >T as variable for measuring RQ and as C predictor	>more focus on dyadic relationships, or dyads into triads >connect more interdependence of C on T and influence on P
C ⟶ T 1. *Fritz and Fischer (2007)* 2. *Fischer (2013)*	>the influence of positive past collaboration on trust >antecedens factors of trust	>past C had positive influence on T	
C+T **<u>No interaction between C and T</u>** 1. *Fischer et al. (2009)* 2. *Reynolds et al. (2009)*	TRUST: >relationship quality >importance of T for sustainable SC COLLABORATION:	>individual perceptions of chain actors investigated, but not C – T interaction	

	>influence of positive past C on sustainable business relationship		
T+P T ⟶ P *1. Uddin (2017)* *2. Molnár et al. (2010)* *3. Mesic et al. (2018)* *4. Odongo et al. (2016)* *5. Lu et al. (2008)*	>P measurement instrument for traditional FSCs >impact of T on P measurements >relationship quality	>2. 3. and 4. developed P measurement instrument for traditional FSCs and measured impact of T on P measurement >1. and 5. investigated impact of T on financial and non-financial P measurement	
C+T+P C ⟶ T ⟶ P *1. Naspetti et al. (2011)*	>key factors for C >T as C predictor >financial and non-financial P measurements	>T in focus as a prerequisite for C and P, confirming suggested model	
		R4	
C+T C ⟵ T *1. Kottila and Rönni (2008)* *2. Hingley et al. (2006)* *3. Zander and Beske (2014)*	>T as C predictor >relationship quality	> T prerequisite for C and important element of RQ	>more focus on food retailer perspective in the future, as individual perceptions of PAFPs were studied in most papers >future papers should investigate interface between actors in the chain
C+T **<u>No interaction between C and T</u>** *1. Bhagat and Dhar (2014)*	>willingness to collaborate and factors that influence C advantages >T as C predictor	>interaction between and T not considered, but T as C predictor and from the C point of view willingness to collaborate	
T+P T ⟶ P *1. Bandara et al. (2017)*	>relationship quality >non-financial P measurements	>impact of T on P and T as a key element of RQ; impact of RQ on suppliers' operational P	
T+P **<u>No interaction between T and P</u>** 1. *Duffy and Fearne (2004a)* 2. *Duffy and Fearne (2004b)* 3. *Batt (2003c)*	>T in partners honesty and partners benevolence >financial P measurements >key factors of mistrust and non-financial P measurements	>dealing with C, T and P separately; mostly individual perception of PAFP	
C+T+P C ⟵ T and C+T ⟶ P	>willingnes to collaborate and factors that influence C advantages	>interdependence of C, T and P, i.e. influence of T on C and influence of T and C on P	

1. *Lobo et al. (2013)*	>personal T (xinyong) and influence on non financial (loyalty) and financial P of farmers		
		R5	
C+T C ⟵ T 1. *Msaddak et al. (2020)*	>key factors of mistrust	>influence of T on C is investigated; variables affecting T and how T affects C >focus is on individual perceptions of PAFPs	>less focus on C >more attention downstream in SC, to facilityte identifying segment that may improve C
T+P T ⟶ P 1. *Hansen et al. (2002)*	>various levels/types of trust >financial and non-financial P measurement	>various levels of T explored and how differences in T types produce differences in outcomes or P	
T ⟶ Loyalty ⟶ P 1. *Susanty et al. (2017)*	>antecedents of T >financial and non-financial P measurement	>preconditions and impact of T on loyalty of individual dairy farmers and impact of loyalty on financial and non-financial business P	
C+T+P C ⟶ T ⟶ governance structure choice ⟶ P 1. *Amentae et al. (2018)*	>willingnes to collaborate and factors that influence C advantages >key factors of mistrust >AFSC performance measurements	>interdependence of C, T and P, the influence of C and T on choice of SCM and the influence of management choice on different AFSC Ps >willingness to cooperate affects T and T affects C - in line with conceptual model of paper	
		R6	
C+T C ⟵ T 1. *Vlachos and Bourlakis (2006)*	>key factors for C	>investigate impact of T on C; T as a key factor for C	>mostly individual perception of all actors in the chain - more dyadic interface method is suggested >research needed to examine attitude stakeholder vs else's impact on P
C+P C ⟶ P 1. *Mathu and Phetla (2018)*	>collaboration strategies >financial and non-financial P measurement	>impact of C on P: how supplier-customer C affects P	

T+P T ⟶ P 1. *van der Werff et al. (2018)* 2. *Jie et al. (2013)* 3. *Gagalyuk et al. (2013)* 4. *Ding et al. (2014)*	>the importance of T for sustainable SC >financial and non-financial P measurement >impact of trust on P measurement >AFSC performance measurements	>impact of T on P with emphasis on impact of T on the sustainability of SCs and on specific agri-food P	
		R7	
T+P T ⟶ P 1. *Banerjee and Mishra (2017)* 2. *Jie and Gengatharen (2019)*	>impact of T on information sharing >financial P measurements > T in partners honesty and partners benevolence	>investigate impact of T on P and T considered in context of information exchange and on financial P measurements; explores T in partners honesty and T in partners benevolence and effects on SC P	>researchers should also look from the point of the food supplier >individual perception of food retailer >C not researched as such >impact of T on information sharing scarce in other papers
		R8	
C+T C ⟵ T 1. *Hardman et al. (2002)*	>T as C predictor	>influence of T on C and T in function of C development >P in these relationships is poorly researched because it is difficult to measure in a global environment	>more global research needed

2.7. Conclusion

In this investigation 137 previous studies on CTP in AFSCM were reviewed on the basis of content analysis, and a conceptual model of CTP in AFSCM is proposed. The analysis of the papers regarding the three keywords, 'collaboration', 'trust' and 'performance' (CTP), in AFSC shows that most of them were trust-oriented, then performance-oriented, and finally collaboration-oriented. The content analysis results show that the academic debate on CTP in AFSC was unevenly developed between 1996 and 2020. Early years of research (1996 - 2008) were dominated by trust-oriented papers, followed by increase in collaboration-oriented papers and the last five years there has been a significant increase in performance-oriented papers. The increase in the number of publications relating to performance in the recent years may be linked to the fact that researchers and authors increasingly implemented entire chain approaches. However, performance measurement of the entire chain is still underrepresented. One of the reasons for this lies in the fact that the researchers encounter great difficulties when measuring SC operational performance (Banerjee and Mishra, 2017; Bandara *et al.*, 2017).

The analysed papers investigated the relationship, specifically the CTP between different chain actors within different AFSC structures where the focus was mainly on the attitudes of the PAFP in relation to its downstream partners in the chain (farmer-processor or farmer-retailer relationship). A complementary analysis applicable for empirical papers is the investigation of the actor perspective and where, or with how many actors, data collection takes place. This is referred to as 'empirical scope' (Ülgen *et al.*, 2019), and this analysis identified three empirical scopes. The first and most numerous empirical scope comprises individual perceptions of individual members of the chain about the relationship with some other chain actors. The CTP research from the perspective of all actors involved, in which the dyadic interface was used, is represented in a much smaller number of papers just as dyads into triads mostly appeared in the last 5fiveobserved years. Since the individual perception of the actors prevails in the research, their myopic nature impedes concluding on the intensity of the relationships. We can identify this as a research gap because it is important to look beyond a one-actor perspective or one SC interface to work out the real indicators of the relationships between actors and chain performance.

Furthermore, only nine papers were found to elaborate on the research into the relationships in OFSCs, which indicates the need to increase the number of studies about these

chains, given that organic agri-food production is gaining more and more importance today. We also noticed that the attitudes of FR, FP and FS in the food processing and retail sector were much less represented, as well as the relationships between other potential actors in an AFSC, such as PAFP with primary agri-food supplier, agri-food co-operative, HoReCa, and especially the relationship with agri-food consumers. All this opens space for future research. Based on the content analysis, it can be concluded that 'trust' as most often in the focus of researchers regardless of chain structure, and 'collaboration' and 'performance' were approximately equally represented in papers. This is confirmed by both our CTP model and the claim that trust is the central component of AFSCM and an important mediator between collaboration and the performance of AFSC.

This research makes several important contributions. Primarily, this is the first research paper, to our knowledge that systematically reviews the AFSC literature and reports the knowledge structure and advances in the research on CTP in AFSCM in several ways. Secondly, the knowledge structure reveals that CTP are important as a concept in supporting the complex system in AFSCM. Thirdly, one of the main contributions to the literature are the proposals for future research based on the identified gaps or less covered aspects. The paper provides a novel framework for further studies in the relationship management within the AFSC, a chain that is *per se* specific. It is evident that the focus in the studied papers is mostly on the impact of trust on collaboration or performance, while the impact of collaboration on trust or performance is very rarely investigated. In only three studies, the connection and interdependence of C, T and P in a relationship were analysed. Nevertheless, from all the above stated, it can be concluded that the authors paid the most attention to trust, and observed that trust in relation to collaboration is one of the key variables for the development of collaboration, *i.e.* trust is a collaboration predictor. Research has also shown that trust has an important impact on performance measurement, especially when it comes to specific agri-food supply chain performance measurements (efficiency, flexibility, responsiveness, food quality and food safety) or measuring performance in traditional food supply chains (traditionalism, efficiency, responsiveness, quality and chain balance). It is also interesting to note and conclude that in most research the individual perception of an individual actor in an AFSC most often involved PAFPs. This is explained by the fact that in PAFPs, regardless of the fact that they include one of the stakeholders, trust is the most important factor for personal success as well as for the chain as a whole.

The findings from this study could be conductive to future research in AFSC collaboration and a potential support for modelling and measuring collaboration performance

more effectively and efficiently. From a managerial perspective, this paper addresses the key aspects of AFSCM, especially when it comes to inter and intra-organizational relationships, the ways of managing relationships since the AF sector in the developed EU countries is dominated by small and medium sized family farms. For smallholder farmers, who generally have a weak bargaining power, trust in interpersonal relationships can be of crucial importance for performance outcomes. Empirical research is needed in order to better understand the proposed model with respect to the different AFSC structures. It is also vital to consider the perspectives of the different members of the SC as well as the relationships among the different members in the chain. In addition, further research should be aimed at multiple informants, such as food intermediary companies, as they are also part of the chains and can provide a 'reality check' in certain AFSC relationships. *Despite its importance, very little is known about the three pillars of the AFSCM - collaboration, trust and performance, and therefore we encourage the researchers to continue exploring the suggested model.*

Chapter 3

Paper No 2

Gajdić, D., Kotzab, H., & Petljak, K. (2023). **Collaboration, trust and performance in agri-food supply chains: a bibliometric analysis**. *British Food Journal*, *125*(2), 752-778. https://doi.org/10.1108/BFJ-07-2021-0723

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3. COLLABORATION, TRUST AND PERFORMANCE IN AGRI-FOOD SUPPLY CHAINS: A BIBLIOMETRIC ANALYSIS

Abstract

Purpose *– This paper identifies, evaluates and structures research that focuses on 'collaboration' (C), 'trust' (T) and 'performance' (P) in the agri-food supply chain (AFSC) and reveals its intellectual foundation. It aims to synthesize research published over a period of 18 years (from 2003 until the beginning of 2020) and provide a platform for practitioners and researchers in their efforts to identify the existing state of work, gaps in current research, and future directions in the area of collaboration-trust-performance (CTP) in the AFSC.*

Design/methodology/approach *– Prior to carrying out a bibliometric analysis (BA), literature search was performed, identifying 69 related papers focused on CTP in the AFSC. The content of the papers was further analysed in systematic literature review (SLR) with regard to the subject area, theoretical lenses, research methodology, supply chain (SC) category and other relevant categories.*

Findings – *CTP in AFSC is based on a relationship marketing and operations management fundament but shows specific particularities. AFSCM is a multi-dimensional design task and collaboration is considered as a necessity, whereas trust significantly affects the AFSC effectiveness. The paper also develops a conceptual CTP model, which shows the interrelations between all identified construct variables, where we were able to see also bi-directional relations. Furthermore, the paper presents viable future research opportunities, e.g. focus on organic food chains or multi-actor analysis.*

Research limitations / implications – *Results of the conducted BA refer to the CTP discussion within a preselected number of peer-reviewed academic articles, which are provided by the WoS CC database.*

Practical implications *– CTP measurements within the AFSC context are a relevant subject with increasing academic interest in the area of agricultural economics as well as operations and supply chain management (SCM). Therefore, further studies are necessary to develop the related theory and ascertain the practical implications of collaboration, trust and performance among members in the consistently complex AFSC.*

Originality/value *– CTP have been recognised as important factors for designing a sustainable SCM strategy, particularly in the case of the AFSC. However, although previous studies have addressed the AFSC, there is insufficient knowledge regarding all three pillars (CTP) and how they enable successful AFSCM. The originality of this paper lies in systematically mapping the intellectual base of CTP research and providing path forward for research in AFSCM.*

Keywords: *collaboration; trust; performance; agri-food supply chain management; bibliometric analysis; intellectual base; co-citation analysis*

3.1. Introduction

The management of agri-food supply chains (AFSC) is a complex task due to certain product characteristics such as quality of food, safety and limitations in the freshness of the products. Consequently, AFSC differ significantly from other supply chains (SCs) (Sufiyan *et al.*, 2019). However, the concept of the agriculture supply chain (ASC) or AFSC had existed for hundreds of years, but it gained popularity only after the development of supply chain management – SCM (Routroy and Behera, 2017). One of the earliest AFSC models was offered

by the first experts to investigate the role and potential food supply chains (FSCs) have in the process of rural development (Marsden, 1998; Marsden *et al.*, 2000), while agri-food supply chain management (AFSCM) was first defined by a group of Dutch scholars (van der Vorst, 2000; van der Vorst *et al.*, 2005). Later, a number of scientists modified the definition of the AFSC to include specific stakeholders and AFSC processes (Tsolakis *et al*., 2014; Dania *et al*., 2016).

The aim of any AFSC is to achieve a full and effective flow of goods, services and information, transferring capital to create and provide maximum customer value (Dinu, 2016). The AFSC encompasses a vast majority of chain actors (**Figure 3.1.**) that ensure the trajectory of the agricultural products "from farm to fork".

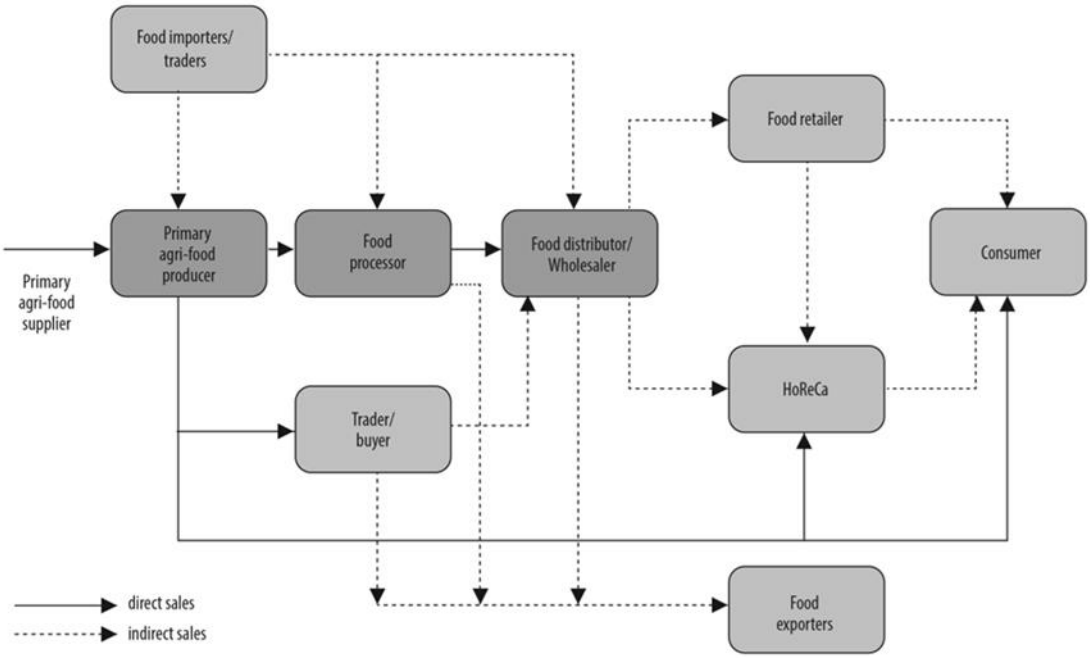

Figure 3.1. Agri-food supply chain actors (own interpretation)

According to van der Vorst (2000) AFSCM differs significantly from the management of other SCs primarily due to its specificity. Each actor in the AFSC bears the cost and collects the benefits even though sometimes it is unfair for certain SC actors. Some actors, such as farmers, are characterized by informal and unstructured organizations – hence, achieving a high level of trust and displaying strong willingness to collaborate are fundamental for this supply chain (SC) performance. Consequently, the SC needs to be maintained to spread the benefit along and across in fair and positive ways (Dania *et al*., 2016).

Numerous researchers have indicated that trust is a powerful antecedent of effective SC collaboration in this chain (Hardman *et al*., 2002; Vlachos and Bourlakis, 2006; Matopoulos *et al*., 2007; Schulze-Ehlers *et al*., 2014; Msaddak *et al*., 2021). Due to the specificity of AFSCs and significant differences in relation to non-FSCs, collaboration and trust are crucial for better flows of products and information as well as for competitiveness and performance of the individual SC members and for the entire chain. Quality collaboration and trust between SC members provides better conditions for joint solutions of issues related to food quality and safety and other difficult-to-detect attributes of measuring performance of the AFSC (Sufiyan *et al*., 2019). Trust is one of the prerequisites for collaboration and it develops through collaboration. Willingness to collaborate affects trust and vice versa (Amentae *et al*., 2018).

Regarding the assumption about insufficient research of the relations in the AFSC (Luo *et al*., 2018), this paper aims to summarise and critically analyse current scientific literature in the area of AFSCM, particularly addressing the aspects of *collaboration (C), trust (T)* and *performance (P)* in AFSC while contributing to the AFSCM field of research. The interest in CTP as an necessary prerequisites of AFSCM has become increasingly important in the last twenty years with both practitioners and academics (Batt and Rexha, 2000; Lindgreen, 2003; Vlachos and Bourlakis, 2006; Matopoulos *et al*., 2007; Kottila and Rönni, 2008; Bezuidenhout *et al*., 2012; Fischer, 2013; Gorton *et al*., 2015; Susanty *et al.*, 2017; Dania *et al*., 2018; Mesic *et al*., 2018; Kataike *et al*., 2019; Nakandala and Lau, 2019; Ramirez *et al*., 2020), as well as both in developed (Dreyer *et al*., 2016; Akhtar *et al*., 2017; Utomo *et al*., 2018; Luo *et al*., 2018; Kataike *et al*., 2019) and in developing (Singh, 2014; Siddh *et al*., 2015; Prakash, 2018; Sufiyan *et al.*, 2019) countries.

Based on this, the goal of our study is intended to answer the following research question:

RQ. How is collaboration, trust and performance discussed in the field of AFSCM and how did it develop over time?

We answer this question by performing a systematic literature review (SLR) in combination with bibliometric analysis (BA). In order to do so, we systematically reviewed the relevant literature and performed the bibliometric analysis. In doing so, we present the body of literature in regard to CTP and explain why CTP in AFSC is worth studying. Our findings sum up insights in existing research and synthetize investigations in an attempt to establish the intellectual foundation of CTP in the AFSC, and thus identify current research gaps and potential avenues for future research. Consequently, the paper offers an aggregate perspective

of the key scientific research contributions made in a 25-year period, concentrating on the most prominent authors, articles and journals that tackle this exceptionally important subject matter.

To our knowledge, very few papers have been published yet that review scientific publications in the field of the AFSC (Luo *et al*., 2018; Luo *et al*., 2020; Barbosa, 2021) and none that focus specifically on CTP in the AFSC. Although insights into the relationships of actors in SCM have been rapidly increasing in the last decade, there is still a scant number of researchers who investigate the relationships of collaboration and trust and their impact on the AFSC, particularly from the standpoint of the relations between agri-food producers and food retailers (Gajdić *et al*., 2021).

The remainder of the paper is structured as follows: the next section addresses the research methodology. After that, the main findings of the BA are discussed, followed by the representation of the intellectual foundation. The paper concludes with a section on the limitations and future outlook.

3.2. Methodology

In order to answer our research question, we carried out our empirical study in seven steps (**Figure 3.2.**): (1) *literature search*, (2) *scope of the analysis*, (3) *search strings and selection process*, (4) *study selection and evaluation*, (5) *papers selected for the systematic literature review and bibliometric analysis*, (6) *systematic literature review and bibliographic network analysis and* (7) *evolution of the main themes and emerging topics.* A detailed description of the applied methodological approach is shown in **Appendix B1** and **Appendix B2**. In the process of defining the methodological steps, we followed the procedure by Bresciani et al. (2021) on performing a concise BA.

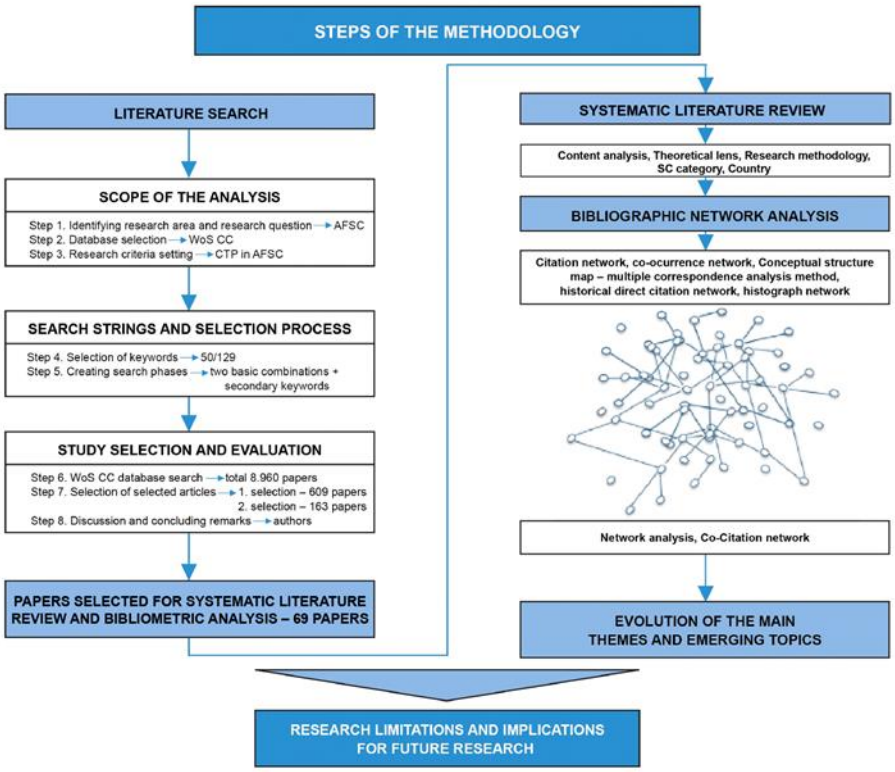

Figure 3.2. Literature Search, Systematic Literature Review and Bibliometric Network Analysis[1]

Overall, we identified a sample of 69 papers which include more than 3,600 references, which consists of two parts: systematic literature review (SLA) and bibliometric analysis (BA). The systematic literature review (SLA) was carried out[2] in order to provide readers with a state-of-the-art understanding of the research topic, help identify research gaps and signal future research avenues, as well as provide a number of critical discussions on a specific research theme by integrating extant literature, synthesizing prior studies, identifying knowledge gaps, and developing new theoretical frameworks (Paul and Criado, 2020). SLR as a method is systematic, transparent, replicable, and succinct, i.e. a scientific process that applies structured steps to achieve the aim of the research (Tranfield *et al*., 2003; Dania, 2018) and is often used

[1] A detailed description of our applied methodological approach is given in Appendix B1.
[2] Full list of references for citation and co-citation analysis available in Appendix B3.

as a reliable model of literature research in examining the area of management (Luo *et al*., 2018). SLR also allows scholars to identify similarities and contradictions in prior research and synthesise prior research into a novel perspective (Chaudhary *et al*., 2021). As Agamez-Arias and Moyano-Fuentes (2017) state, the analysis and synthesis step of the systematic literature review requires a grouping of the literature according to similar or related thematic aspects. Consequently, we divided our sample into different groups of publications that conceptually deal with "*collaboration*", "*trust*" and "*performance*" in the AFSCM.

A BA offers a concise overview of the quantitative composition and evolution of the analysed literature by showing the number of studies published by year, author and country (Bresciani *et al*., 2021). BAs employ bibliographic data and indicators to monitor developmental trajectories of scientific articles and analyses of the relevant articles in a given area of research (De Oliveira *et al*., 2016). A BA is based on quantitative methods of multiple matches (Dabić *et al.*, 2019), while literature review is based on analysing the content of the selected papers (Seuring and Gold, 2012). Moreover, a BA is void of bias, which facilitates increased objectivity in literature reviews. It is simpler and more reliable for processing a great number of articles, facilitates deeper analysis of the relations among the articles, quotations, co-citations and keywords, and hence results in extensive information on the research area (Feng *et al*., 2017; Kotzab *et al*., 2019). The BA is a valuable research tool as it can reveal the nature and direction of research that the field has taken over the past decade (Saha *et al*., 2020). A rigorous BA has been carried out for this study with an aim to address all the pre-defined research questions. BA manifests interconnections among the articles in respect of the frequency with which an article is cited and co-cited by other articles.

A traditional method, such as SLR may offer more insight into the research topic, while BA may supplement SLR and offer an all-encompassing presentation of all existing studies (Hisjam and Sutopo, 2017). In short, these methods are not fungible but complementary (Feng *et al*., 2017), which is the greatest value of simultaneous use of both methods.

3.3. Research results

3.3.1. Chronological development of the data set

Our results show that the academic debate on CTP in the AFSC was unevenly developed between 2003 and 2020. The highest number of articles (12) was published in 2018 while only

1 article per year was recorded in 2006, 2007 and 2011, and 2 in 2003, 2005 and 2009. The results show fluctuations in the interest of the academic community in CTP in the AFSC, but it is clear that most publications (approximately 65%) came out in the recent 7 years.

Among the most prominent journals are the *British Food Journal* and *Supply Chain Management: An International Journal* with 14 publications on the topic each. It has also been noted that the first research on the topic appeared in *Supply Chain Management: An International Journal*. Looking at the authors who published most in the area, we see that most of them have a research background in the area of agricultural economics (Odongo *et al*., 2016) and business (Jie, 2013 and 2019), or in logistics and FSCM (Vlachos *et al*., 2008; Maglaras *et al*., 2015). Moreover, 2 papers were published by Aramyan (2006, 2007), Batt (2000, 2003), Boniface (2010, 2012), Canavari (2010) and Dania (2016, 2018).

3.3.2. Systematic analysis of the data set

All 69 articles were read and analysed in detail. The identified subject areas covered were: *collaboration*, *trust* and *performance*, in addition to the theoretical underpinning, research methodology, type of SC and country (**Table 3.1.**). In addition, we further analysed the definitions of trust, collaboration and/or performance, as well as key concepts in order to understand the knowledge and relationships behind these connections.

Table 3.1. Content analysis representation of the selected papers

Author(s)	C	T	P	Title	Theoretical lens	Research methodology	SC category	Country
Batt (2003a)		X		Building trust between growers and market agents	>none	empirical quantitative study	>AFSC >fresh fruit and vegetable SC	Australia
Batt (2003b)		X	X	Examining the performance of the supply chain for potatoes in the Red River Delta using a pluralistic approach	>transaction cost theory > relationship marketing theory	empirical qualitative study	>AFSC >potato SC	Asia Vietnam
Hingley (2005a)		X		Power imbalanced relationships: cases from UK fresh food supply	>relationship marketing approach >transaction cost economy	conceptual approach	>AFSC >fresh food SC	Europe UK
Hingley (2005b)		X		Power to all our friends? Living with imbalance in supplier–retailer relationships	>none	empirical qualitative study	>AFSC >fresh food SC	Europe UK
Fearne et al. (2006)	X			Implanting the benefits of buyer-supplier collaboration in the soft fruit sector	>none	empirical qualitative study	>food SC >soft fruit SC	Europe UK
Aramyan et al. (2007)			X	Performance measurement in agri-food supply chains: a case study	>none	empirical qualitative study	>AFSC > tomato SC	Europe

								Netherland and Germany
Ghosh and Fedorowicz (2008)		X		The role of trust in supply chain governance	>none	empirical qualitative study	>food SC >food retail distribution SC	North America USA
Hingley *et al.* (2008)	X			Differentiation strategies in vertical channels: a case study from the market for fresh produce	>relationship marketing	empirical qualitative study	>AFSC >fresh food SC	Europe Italy and UK
Leat and Revoredo-Giha (2008)	X			Building collaborative agri-food supply chains	>theory of relationship marketing	empirical quantitative and qualitative study	>AFSC >beef and sheep SC	Europe Scotland
Lu *et al.* (2008)		X	X	Performance in vegetable supply chains: the role of Guanxi networks and buyer–seller relationships	> theory of relationship marketing	empirical quantitative study	>AFSC >vegetable SC	Asia China
Mikkola (2008)	X			Coordinative structures and development of food supply chains	> theory of relationship marketing	empirical quantitative study	>AFSC > vegetable SC	Europe Finland
Vlachos *et al.* (2008)	X			Manufacturer-retailer collaboration in the supply chain: Empirical evidence from the Greek food sector	>SCM theory	empirical quantitative study	>food SC >food manufacturer–retailer chain	Europe Greece
Vieira and Traill (2008)		X		Trust and governance of global value chains: The case of a Brazilian beef processor	>none	empirical qualitative study	>food SC >beef SC	South America Brazil
Kottila and Rönni (2008)	X	X		Collaboration and trust in two organic food chains	>commitment–trust theory of relationship marketing	empirical qualitative study	>food SC >yoghurt SC >muesli SC	Europe Finland
Mena *et al.* (2009)	X			A comparison of inter- and intra-organizational relationships	>transaction-cost economy >organization failures framework	empirical quantitative and qualitative study	>food SC >brewing SC >poultry SC	Europe UK
Vieira *et al.* (2009)	X			Collaboration intensity in the Brazilian supermarket retail chain	>transaction cost theory >resource dependency theory >contracts >game theory >joint ventures >alliances and partnerships >company networks >social relationships	empirical quantitative study	>food retail SC	South America Brazil
Canavari *et al.* (2010)		X		The role of trust in the transition from traditional to electronic B2B relationships in agri-food chains	>none	empirical qualitative study	> AFSC	n/a
Hofstede *et al.* (2010)		X		Towards a cross-cultural typology of trust in B2B food trade	>none	empirical qualitative study	>AFSC >fresh fruit and vegetable, grain, meat and olive SC	Europe Germany, Greece, Italy, The Netherlands and Spain
Boniface *et al.* (2010)		X		Building producer loyalty in Malaysia's fresh milk supply chain	>commitment-trust theory	empirical qualitative study	>AFSC >fresh milk SC	Asia Malaysia
Zhang and Hu (2011)		X		Farmer-buyer relationships in China: the effects of	>TCE theory and relational theory	empirical quantitative study	>AFSC >apple SC	Asia China

				contacts, trust and market environment				
Bezuidenhout *et al.* (2012)	X			An analysis of collaboration in a sugarcane production and processing supply chain	>none	empirical qualitative study	>food SC >sugarcane production and processing SC	South Africa
Boniface (2012)		X		Producer relationships segmentation in Malaysia's milk supply chain	>relationship marketing	empirical quantitative study	> AFSC >milk SC	Asia Malaysia
Suvanto (2012)		X		Constructing a typology of trust in asymmetrical food business relationships	>none	empirical qualitative study	>food SC >pork SC >bread SC	Europe Finland
Viitaharju and Lähdesmäki (2012)		X		Antecedens of trust in asymmetrical business relationships	>none	empirical quantitative and qualitative study	> food producers and retailers' chain	Europe Finland
Fischer (2013)	X	X		Trust and communication in European agri-food chains	>psychological relationship equity theory	empirical quantitative study	>AFSC >meat and cereals SC	Europe Germany, UK, Spain, Poland, Ireland and Finland
Hamzaoui-Essoussi *et al.* (2013)		X		Trust orientations in the organic food distribution channels: A comparative study of the Canadian and French markets	>none	empirical qualitative study	>AFSC >organic food SC	Canada France
Jie *et al.* (2013)		X	X	Linking supply chain practices to competitive advantage	>none	empirical quantitative study	>food SC >beef-processing industry	Australia
Kühne *et al.* (2013)	X	X		The influence of relationship quality on the innovation capacity in traditional food chains	>none	empirical quantitative study	>food SC >traditional food chain	Europe Italy Hungary Belgium
Lobo *et al.* (2013)	X	X	X	The impact of guanxi, xinyong and buyer collaboration on the loyalty and financial performance of vegetable farmers in China	>commitment-trust theory	empirical quantitative study	> AFSC >vegetable SC	Asia China
Singh *et al.* (2013)			X	Modeling supply chain performance: a structural equation approach	>none	empirical quantitative study	>food SC	Asia India
Bhagat and Dhar (2014)	X	X		Relationship Dynamics in the Pineapple Supply Chain: Empirical Evidence from the Garo Hills of Meghalaya	>none	empirical quantitative study	>AFSC >pineapple SC	Asia India
Ding *et al.* (2014)		X	X	Relationships between quality of information sharing and supply chain food quality in the Australian beef processing industry	>commitment-trust theory	empirical quantitative study	>food SC >beef processing SC	Australia
Schulze-Ehlers *et al.* (2014)	X	X		Supply chain orientation in SMEs as an attitudinal construct	>none	empirical quantitative study	>AFSC >dairy SC	Europe Germany
Zander and Beske (2014)	X	X		Happy Growers! Relationship quality in the German organic apple chain	>relational view	empirical quantitative study	>AFSC >organic apple chain	Europe Germany
Anastasiadis and Poole (2015)	X			Emergent supply chains in the agrifood sector: insights from a whole chain approach	>none	empirical qualitative study	>AFSC >organic and conventional citrus SC	Europe Greece

Gorton *et al.* (2015)		X	X	Power, buyer trustworthiness and supplier performance: Evidence from the Armenian dairy sector	>bilateral deterrence theory	empirical quantitative study	>food SC >dairy food SC	Asia Armenia
Maglaras *et al.* (2015)	X			Power-imbalanced relationships in the dyadic food chain: An empirical investigation of retailers' commercial practices with suppliers	>none	empirical quantitative and qualitative study	>food retailer SC	Europe Greece
Touboulic and Walker (2015)	X			Love me, love me not: A nuanced view on collaboration in sustainable supply chains	>relational theory	empirical qualitative study	>food SC	UK Europe
Aji (2016)		X		Exploring Farmer-Supplier Relationships in the East Java Seed Potato Market	>none	empirical quantitative study	>AFSC >seed potato SC	Asia Indonesia
Dania *et al.* (2016)	X			Collaboration and sustainable agri-food supply chain: a literature review	>none	conceptual approach	>AFSC	n/a
Formentini and Romano (2016)	X			Towards supply chain collaboration in B2B pricing	>none	conceptual approach	> AFSC	n/a
Mutonyi *et al.* (2016)		X		Price satisfaction and producer loyalty: the role of mediators in business to business relationships in Kenyan mango supply chain	>none	empirical qualitative study	> AFSC >mango SC	East Africa Kenya
Odongo *et al.* (2016)		X	X	Performance perceptions among food supply chain members	>social network theory	empirical quantitative study	> AFSC >maize SC	East Africa Uganda
Bandara *et al.* (2017)		X	X	Power and relationship quality in supply chains: The case of the Australian organic fruit and vegetable industry	>signalling theory	empirical quantitative study	> AFSC >organic fruit and vegetable SC	Australia
Banerjee and Mishra (2017)		X	X	Retail supply chain management practices in India: A business intelligence perspective	>none	empirical quantitative study	>food retail SC	Asia India
Brooks *et al.* (2017)		X		Pragmatic engagement in a low trust supply chain: Beef farmers' perceptions of power, trust and agency	>channel power and conflict theory	empirical qualitative study	> AFSC >beef SC	Europe Northern Ireland
Odongo *et al.* (2017)			X	Role of power in supply chain performance: evidence from agribusiness SMEs in Uganda	>resource dependence theory	empirical qualitative study	> AFSC >maize SC	East Africa Uganda
Susanty *et al.* (2017)		X	X	The empirical model of trust, loyalty, and business performance of the dairy milk supply chain	>none	empirical quantitative study	>AFSC >dairy milk SC	Asia Malaysia
Uddin (2017)		X	X	Inter-organizational relational mechanism on firm performance	>transaction cost economics >resource-based view	empirical qualitative study	> AFSC >different type of agri-food products	Australia
Amentae *et al.* (2018)	X	X	X	Examining the interface between supply chain governance structure choice and supply chain	>transaction-cost economics	empirical quantitative study	>AFSC >dairy SC	East Africa Ethiopia

				performances of dairy chains in Ethiopia				
Dania *et al.* (2018)	X			Collaboration behavioural factors for sustainable agri-food supply chains: A systematic review	n/a	conceptual approach	> AFSC	n/a
Glavee-Geo and Engelseth (2018)		X		Seafood export as a relationship-oriented supply network	>transaction cost economics >relational view of exchange	empirical qualitative study	> AFSC >seafood SC	Europe Norway
Jacob-John (2018)	X			Adherence to responsibility in organic dry food supply chains	>institutional theory	empirical qualitative study	> AFSC >dry and fresh organic food SC	Asia India
Mathu and Phetla (2018)	X		X	Supply chain collaboration and integration enhance the response of fast-moving consumer goods manufacturers and retailers to customer's requirements	>collaboration and integration theory	empirical qualitative study	>food SC >food FMCG SC	South Africa
Mesic *et al.* (2018)		X	X	Assessment of traditional food supply chain performance using triadic approach: the role of relationships quality	>social network theory	empirical quantitative study	>AFSC >traditional food SC	Europe Croatia
Rota *et al.* (2018)	X			Assessing the level of collaboration in the Egyptian organic and fair trade cotton chain	>none	empirical quantitative study	>AFSC >food and fibre SC	Africa Egypt
Stone and Rahimifard (2018)	X	X		Resilience in agri-food supply chains: a critical analysis of the literature and synthesis of a novel framework	>none	conceptual approach	> AFSC	n/a
Sun *et al.* (2018)		X		How Does Suppliers' Fairness Affect the Relationship Quality of Agricultural Product Supply Chains?	>fairness theory	empirical quantitative study	> AFSC >agfri-food supplier-retailer chain	Asia China
Tröger *et al.* (2018)		X		The Fine Line between Trusting and Cheating: Exploring Relationships between Actors in Ugandan Pineapple Value Chains	>soft systems thinking	empirical qualitative study	> AFSC >pineapple SC	East Africa Uganda
Utomo *et al.* (2018)	X			Applications of agent-based modelling and simulation in the agri-food supply chains	>none	conceptual approach	> AFSC	n/a
van der Werff *et al.* (2018)		X	X	Patterns in sustainable relationships between buyers and suppliers: evidence from the food and beverage industry	>none	empirical quantitative study	>food and beverage SC	Europe Netherlands
Eksoz *et al.* (2019)		X		Judgemental adjustments through supply integration for strategic partnership in food chains	>none	empirical quantitative study	> food SC > perishable, seasonal food	Europe and North America
Jie and Gengatharen (2019)		X	X	Australian food retail supply chain analysis	>none	empirical quantitative study	>food retail SC >beef SC	Australia
Kataike *et al.* (2019)			X	Measuring chain performance beyond supplier–buyer relationships in agri-food chains	>balance theory	empirical quantitative study	> AFSC >dairy SC	East Africa Uganda

Malagueño *et al.* (2019)			X	Customer categorization, relational justice and SME performance in supermarket supply chains	>social exchange theory	empirical quantitative and qualitative study	>food and drink SC	Europe UK
Martins *et al.* (2019)			X	Implications of horizontal and vertical relationships on farmers performance in the Brazilian pork industry	>network theory	empirical quantitative study	> AFSC >pork SC	South America Brazil
Nakandala and Lau (2019)		X		Innovative adoption of hybrid supply chain strategies in urban local fresh food supply chain	>none	empirical qualitative study	>fresh food SC	Australia
Puska *et al.* (2019)			X	Impact of sharing information with supplier and buyer on the organizational performance of food companies in Bosnia and Herzegovina	>none	empirical quantitative study	>food SC >different food producers	Europe Bosnia and Hercegovina
Palacios-Argüello *et al.* (2020)	X			Which is the relationship between the product's environmental criteria and the product demand? Evidence from the French food sector	>none	empirical quantitative and qualitative study	>food SC > food-processing sector	Europe France

We see that most of the papers were *trust-oriented* (21), then *collaboration-oriented* (18) and finally *performance-oriented* (7). One of the reasons for the low number of *performance-oriented* papers is the fact that it is not easy to measure AFSC operational performance (Banerjee and Mishra, 2017; Bandara *et al*., 2017). There are challenges in identifying the appropriate performance measures for the analysis of the SC (Arzu Akyuz and Erkan, 2010). Guersola *et al*. (2018) indicate that empirical studies on chain performance are still immature and recommend further empirical evidence on the perceived chain performance among the chain members. Besides that, measuring the performance of AFSCs is rather difficult due to the numerous characteristics that set them apart from other types of SCs (Aramyan *et al*., 2007). The analysis also included articles that deal with two keywords in parallel. Thus, *collaboration* and *trust* occurred in 7 articles, *trust* and *performance* in 14, *collaboration* and *performance* in 1, and two papers incorporated all three keywords (Lobo *et al*., 2013; Nakandala and Lau, 2019).

Regarding the methodological background of the examined papers (see also **Table 3.1.**), the majority of them are empirical qualitative and/or quantitative studies (63) and only 6 apply the conceptual approach. With regards to theory, the papers are embedded in the following theoretical underpinnings, predominately theory of relationship marketing and transaction cost theory. Authors use the relationship marketing theory to explain buyer-seller relationships in the AFSC and how this is connected with the delivery of the value to the customers.

Time analysis which was divided into 3 six-year sections (**Table 3.2.**), shows that the last period (2015–2020) displays a prominent rise in publications of *performance-oriented* papers (15). Even so, *trust-oriented* papers (19) still dominate the research field and, interestingly, an increase in *collaboration-oriented* papers (13) is observed.

Table 3.2. Chronological development of the analysed constructs

Time period	Number of papers		
	C	T	P
2003 - 2008	6	8	3
2009 - 2014	9	16	4
2015 - 2020	13	19	15

The increase in the number of publications relating to performance in recent years may be linked to the more widespread implementation of whole chain approaches by researchers. Also, in addition to the usual financial indicators in a particular AFSC, they started analysing non-financial indicators, such as efficiency, flexibility, food quality and safety, level of losses, responsiveness, etc. (Aramyan *et al.*, 2006; Amentae *et al*., 2018; Jie and Gengatharen, 2019; Kataike *et al*., 2019). With the increase in performance-oriented papers, it stands to reason that the number of CT oriented papers is growing as well. Also, previous research has shown that C and T significantly affect P in the AFSC, and these variables in the context of empirical research on collaboration in the AFSC are being investigated together to an increasing extent (Naspetti *et al*., 2011; Lobo *et al*., 2013; Amentae *et al*., 2018).

If we look at the sectoral focus of the academic discussion on CTP in the AFSC, the following AFSCs have been noticed to attract the most research interest (**Table 3.1.**). It was also observed that only 5 papers elaborated on the research of the relationships in organic food SCs, which indicates the need to intensify the studies in these chains, given that organic agri-food production is gaining more and more importance today.

Most of the research publications discuss various topics related to the FSC or AFSC in developed countries and the results of these investigations have shown that the academic discussion is focused primarily on EU countries, with 29 articles, followed by Asian countries (14). Moreover, 9 countries were geographically located in Africa, 7 in Australia and 6 in North and South America. Specifically, the most prominent EU countries were the United Kingdom (8), Germany (5) and Finland (5).

3.3.3. Bibliometric analysis of the data set

The 3,600 references were analysed by using the notions of Aria and Cuccurullo (2017) as well as Zupic and Čater (2015). We used the Biblioshiny software of the R-tool Bibliometrix, as well as the VOSviewer for further visualisation (Aria and Cuccurullo, 2017; van Eck and Waltman, 2010).

Table 3.3. displays the top 11 manuscripts per citations, where TC (Total Citation) indicates the number of times each manuscript was cited, whereas TCperYear (Total Citation per year) shows the average annual number of times each manuscript was cited. Those papers with a high GCS are recognised as seminal or influential papers in the body of knowledge (Knoke and Yang, 2008).

Table 3.3. Most influential authors by numbers of citations / Most globally cited documents

Paper	Total Citations	TC per Year
HINGLEY MK, 2005, IND MARKET MANAG	171	10,688
ARAMYAN LH, 2007, SUPPLY CHAIN MANAG	160	11,429
ZHANG M, 2013, INT J PHYS DISTR LOG	79	9,875
BATT PJ, 2003, SUPPLY CHAIN MANAG	69	3,833
TOUBOULIC A, 2015, J PURCH SUPPLY MANAG	67	11,167
GHOSH A, 2008, BUS PROCESS MANAG J	67	5,154
HINGLEY MK, 2005, INT J RETAIL DISTRIB	63	3,938
KOTTILA MR, 2008, BRIT FOOD J	44	3,385
FISCHER C, 2013, SUPPLY CHAIN MANAG	37	4,625
KUHNE B, 2013, SUPPLY CHAIN MANAG	30	3,75
MIKKOLA M, 2008, BRIT FOOD J	30	2,308

The top manuscripts per citations are Hingley (2005) on the power imbalance in supplier-retailer relationships, followed by Aramyan *et al.* (2007) on the novel conceptual model for SC performance measurement in an AFSC – financial and non-financial performance measurement.

Next, we show the results of our applied citation-based mapping techniques, especially the results of our co-citation analyses. Co-citation is defined as the frequency with which 2 documents are cited together in other documents.

Figure 3.3. offers a visualisation for the results of the co-citation analysis for reference. The distances between the documents show the similarity of the documents (van Eck, 2011).

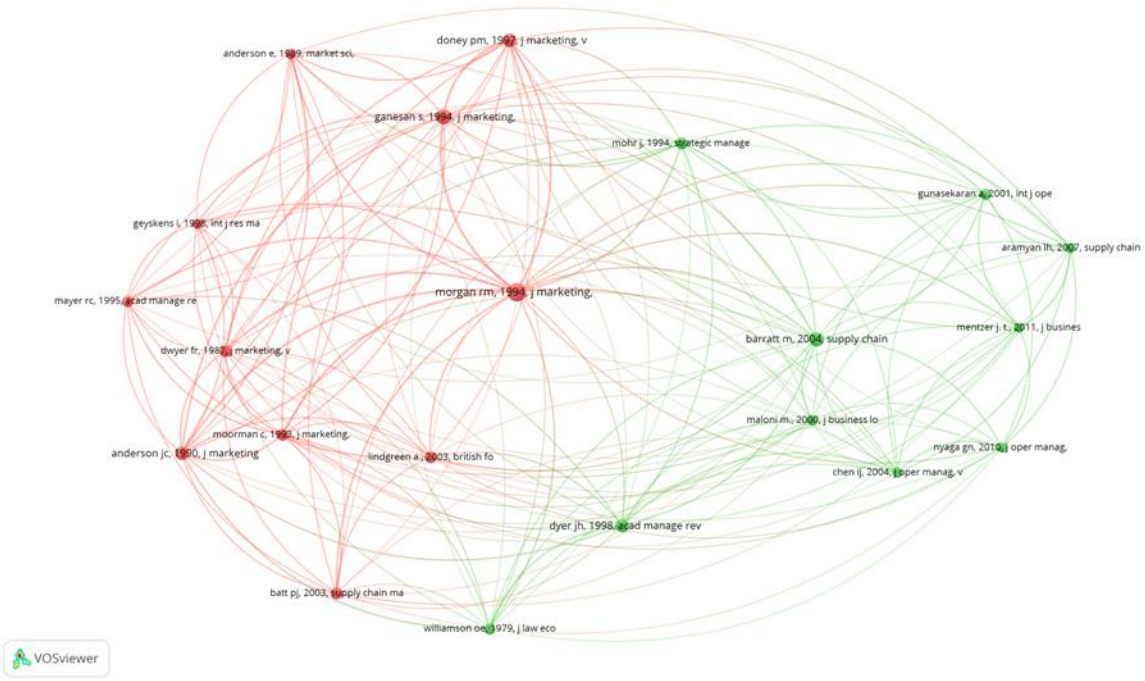

Figure 3.3. Network of the most 21 co-cited references

We identified 2 nearly equally sized co-citation clusters, which we characterised as 'Trust in distribution channels' (red cluster; n=11) and 'Relationship and performance management' (green cluster; n=10) (see **Table 3.4.**).

Table 3.4. 21 most co-cited articles

'Trust in distribution channels' (red cluster)	Morgan and Hunt (1994); Lindgreen (2003); Ganesan (1994); Doney and Cannon (1997); Batt (2003); Moorman and Rust (1999); Anderson and Narus (1990); Dwyer *et al.* (1987); Mayer *et al.* (1995); Geyskens *et al.* (1998); Anderson and Weitz (1989)
'Relationship and performance management' (green cluster)	Williamson (1979); Dyer (1998); Chen *et al.* (2004); Maloni and Benton (2000); Barrat (2004); Mohr and Spekman (1994); Nyaga (2010); Mentzer *et al.* (2011); Aramyan (2007); Gunasekaran *et al.* (2011)

All these sources were mainly published in very high ranked peer reviewed academic journals from the field of marketing, strategic management, operations, SC and logistics

management. It is interesting to note that all papers represent either theoretical or conceptual understandings of trust, partnerships, SC and/or performance. Only one paper deals explicitly with the AFSC (Aramyan, 2007).

Focusing on the particular clusters, we are able to observe within the 'Trust in distribution channels' cluster that the papers provide proof of a theoretical fundament of trust-based relationships that stems from the marketing channel theory (Morgan and Hunt, 1994; Lindgreen, 2003; Doney and Cannon, 1997; Batt, 2003; Mayer *et al*., 1995; Geyskens *et al*., 1998) and a conceptualisation of partnerships, which is also positioned within the theory of distribution channels (Ganesan 1994; Moorman and Rust, 1999; Anderson and Narus, 1990; Dwyer *et al*., 1987; Anderson and Weitz, 1989). Morgan and Hunt (1994) theorise that establishing, developing and maintaining a successful relationship requires relationship commitment and trust. The main limitation of their study is the context of the study (automobile tire retailers), which is why they suggest extending the study to other partnerships. Lindgreen (2003) analyses trust as a valuable strategic variable in the food industry, with a focus on the Danish-British bacon SC and the challenges of implementing different types of trust. Ganesan (1994) researches the determinants of the long-term orientation in buyer-seller relationships and his results indicate that trust and dependence play key roles in determining the long-term orientation of both retail buyers and their suppliers. The results also indicate that both similarities and differences exist across retailers and suppliers with respect to the effects of several variables on long-term orientation, dependence, and trust. Doney and Cannon (1997) examine in their research the nature of trust in buyer-seller relationships and conclude that trust of the supplier firm and trust of the buyer influence a buyer's anticipated future interaction with the supplier. Batt (2003) and Moorman and Rust (1999) analyse the contribution of the role of marketing to perceptions of firm financial performance, customer relationship performance, and new product performance beyond that explained by a firm's market orientation. Anderson and Narus (1990) focus in their research on the model of distributor and manufacturer firm working partnerships and they conclude that collaboration is an antecedent rather than a consequence of trust. Dwyer *et al*. (1987) write about developing buyer-seller relationships and put focus on the importance of ongoing relationships. Mayer *et al*. (1995) focus on the causes, nature and effects of trust and conclude that there are many areas in which trust has been cited as playing a key role, however, future development and testing of the integrative model of organisational trust is needed. Geyskens *et al*. (1998) research the role of trust in marketing channels and conclude that trust contributes to the satisfaction and long-term orientation over

and beyond the relationship outcome. Anderson and Weitz (1989) write about the determinants of continuity in conventional industrial channel dyads and conclude that online trust is a key factor contributing to online purchasing behaviour.

The 'Relationship and performance management' cluster includes papers that provide proof of a theoretical foundation of distribution channel relationships within the transaction cost theory (Williamson, 1979), the relational view (Dyer and Singh, 1998) or power (Maloni and Benton, 2000). Williamson's (1979) transaction cost economics posit that the optimum organizational structure is one that achieves economic efficiency by minimizing the costs of exchange. Dyer and Singh (1998) suggest with their relational view theory that a firm's critical resources may span firm boundaries and may be embedded in interfirm resources and routines and as such they represent sources of interorganisational competitive advantage. Maloni and Benton (2000) explore the effects of power on factors of supplier satisfaction in order to provide the key to understanding the power-satisfaction link in supply chain relationships. The remaining papers aim to define a general understanding of an SC (Mentzer *et al*., 2001), examining SC relationships between a buyer and a supplier (Nyaga, 2010) through examination of buyers' and suppliers' perceptions, understanding the meaning of collaboration in the SC (Barratt, 2004), the importance of strategic purchasing for sustainable competitive advantage (Chen *et al*., 2004) and characteristics of successful partnerships (Mohr and Spekman, 1994), as well as how to measure SC performance in the AFSC (Aramyan *et al*., 2007; Gunasekaran *et al*., 2011).

Figure 3.4. and **Table 3.5.** below present the results of the co-citation analyses of the used sources.

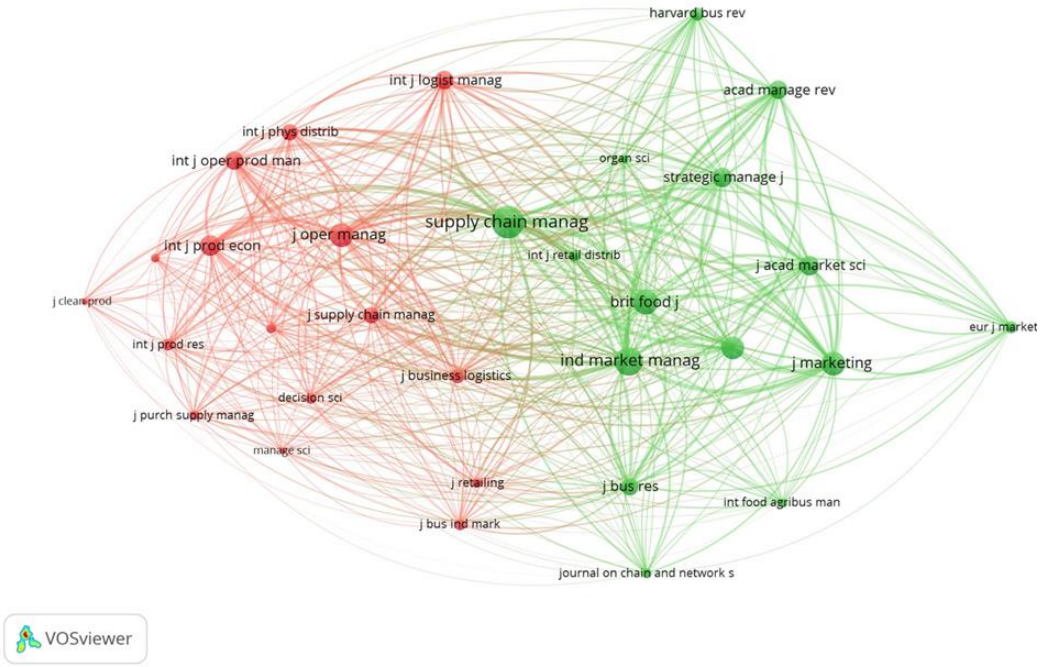

Figure 3.4. Network of the 31 most co-cited sources

Table 3.5. 31 most co-cited sources

Journal Cluster 'Strategic AFCM' (=green cluster)	Harvard Business Review, Academy of Management Review, Organisation Science, Strategic Management Journal, Supply Chain Management: An International Journal, International Journal of Retail & Distribution Management, Journal of the Academy of Marketing Science, Journal of Marketing, Journal of Marketing Research, Industrial Marketing Management, Journal of Business Research, International Food and Agribusiness Management Review, Journal on Chain and Network Science, British Food Journal
Journal Cluster 'AFC Operations and Logistics' (= red cluster)	International Journal of Logistics Management, International Journal of Physical Distribution and Logistics Management, International Journal of Operations and Production Management, Journal of Operations Management, International Journal of Production Economics, Journal of Supply Chain Management, Journal of Business Logistics, Journal of Business and Industrial Marketing, Management Science, Decision Science, Journal of Cleaner Production, Journal of Purchasing and Supply Management, International Journal of Production Research, Industrial Management and Data Systems, Transportation Research: Part E

Also, here we identified 2 clusters of nearly equal size. Based on the types of journals, we see that the intellectual base is taken from the field of strategic management as well as marketing, operations, logistics and SCM.

The first cluster (in red) represents the strategic management/marketing orientation within AFC and includes highly ranked general management and marketing journals as well as specific SC and food and retail journals. The strongest journals within this group are *SCM:IJ*, followed by *IMM*, *BFJ* and *J. Mark.*.

The second cluster (in green) represents the operations and performance orientation of the AFC. The strongest journals here are the *JOM*, *IJPE*, *IJPOM* and the *IJLM*.

Overall, we are able to distinguish a clear positioning when it comes to the constructs of collaboration and trust within the marketing channel theory and for performance within the SC performance domain.

3.4. Discussion of findings

Collaboration in the AFSC area is largely conditioned by the specificities of the AFSC and the characteristics of each individual channel with respect to the length and number of actors in the SC. Due to the specificity of AFSCs and significant differences regarding non-FSCs, collaboration and trust are crucial for better flow of products and information and for competitiveness and performance of individual chain members as well as for the entire chain (Masuku and Kirsten, 2004; Naspetti *et al*., 2011; Lobo *et al*., 2013; Gorton *et al*., 2015; Bandara *et al*., 2017; Susanty *et al*., 2017; Amentae *et al*., 2018; Sufiyan *et al*., 2019).

This leads to the overall understanding of CTP in an AFSC context, where trust is the central component of the AFSC as it influences collaboration, and vice versa. Willingness to collaborate affects the development of trust, while without trust, collaboration between partners in the chain cannot be developed. Therefore, trust is considered to be a mediator for enhancing supply chain performance (see **Figure 3.5.**).

Figure 3.5. Conceptual understanding of CTP

Based on our systematic literature review (**Table 3.1.**), we understand the design and management of AFSC according to Tsolakis *et al*. (2014) as a strategic multi-dimensional design task, where collaboration sometimes becomes more of a necessity than an option, as collaboration and trust can significantly affect the effectiveness of the AFSC (**Figure 3.5.**), and trust is the critical determinant of a good buyer-seller relationship (Batt and Rexha, 2000). Consequently, our findings show a number of key collaboration factors or prerequisites: effective communication (Chen et al., 2004; Schulze *et al*., 2006; Kottila and Rönni, 2008), mutual exchange of information (Batt and Rexha, 2000; Kottila, 2009; Boniface *et al*., 2010), resource sharing (physical, financial, human and organizational) (Barney, 1991; Mentzer *et al*., 2001; Kottila, 2009), transparency between partners (Puspitawati *et al*., 2011; Mutonyi *et al*., 2016), commitment (Boniface, 2012; Schulze *et al*., 2006), willingness to share risks (Sahay and Maini, 2002; Raj Sinha *et al*., 2004; Bezuidenhout *et al*., 2012), long-term orientation (Lobo *et al*., 2013; Aji, 2016; Bandara *et al*., 2017).

These key factors affect trust and vice versa and especially the quality of collaboration depends on trust between partners. Successful AFSCM also requires effective performance management, i.e. identification of important factors that enable their measurement. The measurement of FSC performance has recently attracted a lot of research interest (Bourlakis *et al*., 2012; Odongo *et al*., 2016; Mesic *et al*., 2018; Moazzam *et al*., 2018; Kataike *et al*., 2019).

Due to the specifics of AFSCs in measuring trust and its impact on performance, it is difficult to measure classic performance indicators for the purpose of assessing non-FSCs (Laeequddin *et al*., 2010; Stuart *et al*., 2012), which is why Aramyan *et al*. (2006) suggest efficiency, flexibility, responsiveness, food quality and food safety.

As 'collaboration' and 'trust' can facilitate the efficiency of the AFSC, it is crucial to enhance the performance of not only the individual members in the SC but of all its participants as a whole. Namely, the achievements and competitiveness of the entire SC depend on the resilience of its weakest link (Trienekens *et al*., 2012).

We can conclude that AFCSs are characterized by highly interdependent partnerships and a span of relationship types (Hogarth-Scott, 1999). Due to different characteristics of products (fresh, processed food) there are different structures of relations in an AFSC (e.g. farmer-processor; farmer-trader, processor-trader, etc.) or forms of management which significantly affect the determinants of trust (Batt, 2003a; Schulze *et al*., 2006). Especially here, both business relationships (e.g., prices, costs, and market) and social (e.g., local connections,

trust, and friendship) relationships are considered vital to its success. Business relationships between farmers and processors in AFSC have by and large the character of informal repeated market transactions (Reynolds *et al*., 2009). Therefore, trust and satisfaction in AFSC are often highlighted as essential determinants of successful collaboration (Batt, 2003a; Schulze and Spiller, 2006; Aji, 2016). As the satisfaction of farmers increases, so does trust, which leads to a long-term commitment to the relationship (Aji, 2016).

Diversity, complexity and specific features of AFSCs, and continuous changes in the business environment affect the way an AFSC is coordinated, controlled and managed. Hence, successful AFSCM also requires effective management of the AFSC performance, i.e. determine the essential factors that enable their measurement. An AFSC is considered efficient if the activities, operations and its processes reduce overproduction, remove stocks that are no longer needed, minimize operational stocks, streamline the movement of the chain, eliminate downtime or detours to reduce waiting time, reducing till eliminating waste and non-compliant items (Dinu, 2016). Due to the AFSC's specifics in measuring trust and its impact on performance, it is difficult to measure the classic performance indicators used for assessing non-FSCs (Laeequddin *et al*., 2010; Stuart *et al*., 2012). Moazzam *et al*. (2018) suggest financial and non-financial indicators; holistic to entire SCs; food quality focus; risk assessments; and environmental sustainability as adequate performance indicators for measuring AFSC performance, while Bourlakis *et al*. (2012) refer to cost, speed/ability to deliver, flexibility and product quality.

Overall, we see that 'collaboration' and 'trust' facilitate the efficiency of the AFSC, thus it is crucial to enhance performance of not only the individual members in the SC but of all its participants as a whole and thereby focus on the resilience of its weakest link (Trienekens *et al*., 2012). Collaboration in the SC can be increased by sharing information, resources and risk. Again, 'trust' plays the key role here: not only is it vital that those factors are shared mutually, but it is also essential to understand that the distribution of the financial component, which is generated by collaboration, depends on trust (Kache and Seuring, 2014).

Figure 3.6. summarises the conceptualisation of the discussed CTP-constructs and its relationships and we suggest their interaction as following conceptual model, which should be further investigated.

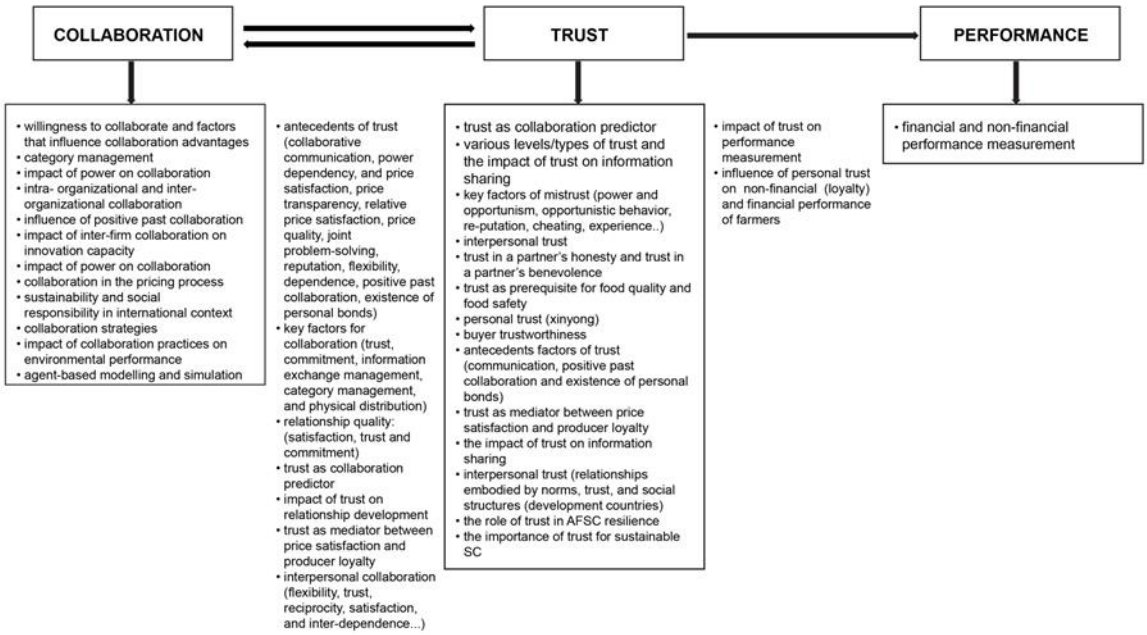

Figure 3.6. Collaboration, trust and performance as important variables for AFSCM

In addition, we see the following opportunities for future research:

- So far, we see the relationship between food processing and the retail sector as a less represented area, which deserves more attention. In particular it would be good to examine the relationships between organic food producer in collaboration with organic food retailer.
- Furthermore, collaboration, trust and performance as relationship categories are still predominately individually researched, while future opportunities lie in providing more detailed overview of interaction between collaboration, trust and performance, especially the impact of collaboration and trust on performance.
- We also see a need to expand the research focus from a single-actor or dyadic analysis to a multi-actor analysis in order to capture the whole dynamics of these particular supply chains. Looking only at one SC interface leads to a limited understanding of the whole CTP-framework. Therefore, we suggest future research to include AF producer, AF processor and AF distributor (wholesaler or retailer) in order to better optimise supply and demand management.

- We also see a need to deepen the knowledge of CTP within organic food chains, as this segment will receive more consumer attention in the future. The Commission has set out a comprehensive organic action plan for the European Union. Through it, the Commission will aim to achieve the European Green Deal target of 25% of agricultural land under organic farming by 2030, which also justifies the need to put more research focus on organic food chains (EC Europa, 2021).

3.5. Conclusion

The purpose of our paper was to identify the roots of CTP within the research domain of the AFSC as well as to recognise the intellectual foundation of this particular research field.

Despite the importance of the AFSC for many countries, we see that the topic does not receive a lot of research attention. The most attractive research outlet in terms of the number of publications is the BFJ in which 20 per cent of the articles in our sample were published. When it comes to the analysis of the individual constructs of the CTP framework, we see that trust is the most dominating construct, followed by collaboration and, finally, performance. However, we see that performance-based research has gained more attention in the last five years.

The major contribution of our research is the recognition of the intellectual foundation of CTP within the AFSC. From a theoretical point of view, we clearly see a dominance of marketing-channel thought when it comes to dealing with the construct of trust. The most used academic journals here represent the domain of marketing and strategic management. Collaboration is also described and explained from a marketing channel/relationship management perspective to a certain degree. The small, but increasing, number of performance-related papers that focus on the performance aspect use more of a logistics/SC/operation point of view and take their knowledge from the respective journals. Here we also see a theoretical foundation within the notions of transaction cost theory, relational view and power.

It is interesting to see that the citation network analyses identify topical clusters and not so much methodological clusters, even though the majority of the sample papers represent empirical research. However, our findings indicate a conceptual domination when it comes to the examination of trust within the AFSC.

Overall, our findings offer important implications for the research community in the area of CTP in the AFSC as we were able to observe applications of market-based theories but have identified a lack of SCM-related theories. This offers new potential for future research that should apply more SC thought when examining CTP issues. For example, it could be of interest for academic community to research the distribution of food or risk mitigation in the time of SC disruptions, bullwhip effect in the AFSC, integration of regional food producers in large retail chains, managing and developing CTP in specific FSCs, such as organic ones.

Limitations of our research refer to the data quality on which BA is typically built upon. This includes the choice of the data source where we used WoS, which is powerful, but may not include all sources and may also have some imperfect literature references due to misspellings of authors' names or different journal labelling in the provided reference lists. Although we have checked the data set to the best of our abilities, there still might be some typographical differences.

Chapter 4

Paper No 3

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4. PRELIMINARY RESEARCH ABOUT PRODUCERS' PERCEPTIONS OF RELATIONSHIP QUALITY WITH RETAILERS IN THE SUPPLY CHAIN OF ORGANIC FOOD PRODUCTS IN CROATIA

Abstract

Due to insufficient research on the relationships in the supply chain (SC) of agri-food products, and especially organic food products, the main goal of this study was to examine the perceptions of organic food producers about the importance of collaboration and trust to their performance in the organic food SC. An analysis of previous research has concluded that the important categories of relationship quality (RQ) are the following: appropriate inter-organisational collaboration, effective communication, mutual exchange of information, resource sharing (physical, financial, human, and organisational), willingness to share risks, transparency between partners, relationship quality and commitment, and the presence of trust between partners in the SC. An empirical study based on in-depth interviews was conducted on a sample of six organic food producers in Croatia. The results indicated that the producers' perceptions of the impact of collaboration and trust on overall performance differs depending on the length of the collaboration with retailers, the types of products, and the percentage of overall sales they sell through retailers. The results of this research can serve as an information base for all stakeholders in the SCs of organic products by encouraging them to participate in activities that will strengthen trust and collaboration as a prerequisite for increasing SC organic food performance.

Keywords: *relationship quality; organic food producers; organic food SC; qualitative research; Croatia*

4.1. Introduction

In the last ten years, both in the world and in Croatia, there has been an increased interest in organic production, and this is the result of several factors. The most important of these are (Rodale and Schlosser, 2011): the large area of uncultivated land suitable for organic production, low pollution of the ecological system, increased consumer concern for health, and the growing importance of renewable sources in the global environment.

At the global and European level, there is a growing trend of areas under organic production. Since 2000, there has been an increase in areas under organic production of greater

than 500%. According to the FiBL survey (FiBL, 2020), there has been a steady increase in the area covered by organic production in the world, which has grown to 71.5 million hectares. Organic agriculture is developing rapidly, and available statistics show that organic farming is practiced by 2.8 million producers in 186 countries (FiBL, 2020).

Although the interest in organic agriculture is growing, there is limited research focused on organic food producers (Cranfield *et al*., 2009; Doernberg *et al*., 2016; Gajdić *et al*., 2018; Orsini *et al*., 2019). Small organic food producers are often very inefficient, and they interested in different possibilities within distribution channels, such as networking and better collaboration within the SC.

Agri-food supply chains (AFSCs) differ significantly from other SCs due to the specifics of agricultural production, its dependence on natural conditions, the seasonal nature of production, specific product characteristics (e.g., short shelf life and perishability of products), etc. The authors of (Boudahri *et al*., 2012; Fischer and Hartmann, 2010) state that AFSCs are characterized by: (1) business relationships that typically confront profit sharing within the SC (the so-called profit–rebate relationship); (2) treatment of farmers as substitutable (and usable) input suppliers, who often operate in a limited market or under short-term contracts and therefore assume greater risk; and (3) profits from the sale of finished food products that are unevenly distributed along the SC because processors and retailers usually earn a significantly higher share compared to organic food producers.

Dani (2015) points out that the AFSC has two main goals: (1) to meet consumer demands and (2) to manage the chain effectively and become and remain economically viable. In addition, Dani (2015) believes that the AFSC can be discussed in two ways, as: (1) processor-oriented commodity chains and as (2) consumer-oriented value chains. The quality and safety of agri-food products are just some of the aspects that consumers care about more today than before, and which are also necessary prerequisites especially for AFSCs (Trienekens *et al*., 2012).

Sustainable food production and distribution is one of the most important problems in developed and developing countries. Market regulation, the emergence of global companies, and changing patterns of consumer behaviour when buying and consuming food (e.g., demand for off-season products) are just some of the factors that significantly affect AFSCs. The agri-food activity also has a direct impact on the environment, playing a very important role in the sustainable management of natural resources and in the adaptation and mitigation of the effects of climate change (Martínez-Azúa *et al*., 2020). Food supply chains (FSCs) from the primary

farmer to the final consumer create a direct impact on the environment through the way food is produced, processed, transported, stored, and prepared, generating significant amounts of food waste and food losses. AFSCs need to become not only efficient and affordable, but also more sustainable and resilient. The long-term sustainability of this system requires the joint and integrated collaboration of all stakeholders in the FSC to include economic, technological, organisational, social, and environmental aspects in the strategic planning and design of sustainable AFSCs.

According to the definition given by Seuring and Müller (2008), sustainable supply chain management (SSCM) can be defined as 'management of material, information, and capital flows as well as collaboration between companies along the SC, while achieving objectives from all levels of sustainable development, i.e., economic, environmental, and social'.

One of the most frequently cited definitions of sustainability is the triple bottom line (TBL) model, introduced by Elkington (1997), which divides sustainability into three basic points: a) economic prosperity; b) environmental quality; and c) social equality. All three basic points and their interactions must be considered when designing sustainable AFSCs. The economic, environmental, and social requirements of stakeholders in the SSCM of agri-food products depend on the quality of collaboration and involve individual stakeholders in SSCM projects, e.g., retailers often play a central role in FSCs by linking primary production and processing with consumers (Fritz and Schiefer, 2008) and dictate market conditions that include elements of sustainability (such as quality standards, environmental management systems, etc.).

According to Dania *et al*. (2018), 10 key behavioural factors have been identified that enable an effective collaboration system for sustainable AFSCM, namely: joint efforts, division of activities, value of collaboration, adjustment, trust, commitment, fair distribution of power, continuous improvement, coordination, and stability.

Indicators of how the current characteristics of the agri-food system should change were presented by Ambler-Edwards *et al*. (2009), citing some of the new sustainability requirements for all actors in AFSC at the following levels, including quality of SC relationships. This includes better horizontal collaborative relationships, better vertical collaboration, long-term supply contracts in which power is balanced, partnerships with other sectors/industries, and connecting the entire chain from the farm to the consumer while collaborating with all stakeholders of the chain.

A case study on the Parmigiano Reggiano cheese SC presented the results of in-depth research where the role of the SC, deriving by cooperation, is relevant to increase the sustainability and resilience of the production chain and of the entire eco-social local system, even in economically fragile areas (Giovannetti *et al*., 2021).

In essence, collaboration is a key approach to achieve a balance between all sustainability goals, by mitigating the individualistic and opportunistic behaviour of stakeholders in the SC. Effective and quality collaboration for sustainable AFSCs can make it easier for farmers to access resources, opportunities, and benefits equal to those of the other stakeholders in the SC (Dania *et al*., 2018; Touboulic and Walker, 2015; León-Bravo *et al*., 2017).

Precisely because of the above, AFSCs should be viewed as *'value chain systems'* in which the raw material (from an agro-industrial source) is converted into final consumption as it moves through the chain and increases in value. AFSC members strive to improve the functioning of the chain, from the perspective of quality, competitiveness, pricing, requirements for the absolute safety of agri-food products, and regarding mutual relations between chain members (trust, communication, knowledge exchange, loyalty, etc.).

Despite the need to increase the efficiency of the distribution of organic food products in Croatia, so far, no research has been identified in international and domestic literature that has researched the quality of the relationship between producers and retailers in the organic food sector. The only research in Croatia that has dealt with the perceptions of producers about the impact of the quality of relations on the performance of SCs is that of Mesić *et al*. (2018) carried out for the SC performance of the traditional food sector. In this paper, the key problems identified are the use of unfair trading practices (exploitative contracts, high rebates), receivables, non-compliance with payment deadlines, low wholesale prices, high costs of logistics, and poor collaboration and integration between chain members. A similar situation is still present in many countries of central and eastern Europe (European Commission, 2014). Considering the growth of the importance of the organic food sector in the world and in Croatia, the objective of this paper is to examine the perceptions of organic food producers about the importance of collaboration and trust on their performance in the organic food SC, and to give recommendations for the improvement of relationship quality (RQ) with retailer within this SC.

Empirical research will be used to answer the following research questions: *'How do organic food producers perceive the most important factors of collaboration with retailers in the organic food SC?'; 'How developed is trust among organic food producers and retailers in*

the organic food SC?'; and 'How do collaboration and trust between organic food producers and retailers influence overall organic food SC performance?'

The remainder of the paper is structured as follows: The next section addresses relationship quality and collaboration in the AFSC, trust, and overall supply chain performance, followed by a short description of the organic food market and main distribution channels, with a special focus on the Croatian market. Thereafter, the main findings of the qualitative empirical research conducted on a sample of organic food producers in Croatia are discussed, followed by a discussion of the research results. The paper concludes with a section on the managerial implications, limitations, and future research directions.

4.2. Literature review

One of the goals of the SC is that companies do not view each other individually, but as members of a competitive network in which multiple companies are involved in value creation (Kache and Seuring, 2014). This goal can only be achieved through the collaboration of all members in the SC, because the network has a competitive environment that brings benefits to all stakeholders and strengthens the SC (Lambert and Cooper, 2000). Collaboration is a process in which several people or business entities come together (integrate) to perform a job or activity, sharing tasks and roles, helping each other, and coordinating efforts, to achieve a common goal. This implies collaboration that includes partnership, joint leadership, risk sharing, co-decision (i.e., a closer and more intensive relationship), equality, and engagement. Mentzer *et al*. (2008) under collaboration in SC defines *'a business process in which collaborating partners work together to achieve common goals that are mutually beneficial to partner companies'.*

One of the preconditions for the successful functioning of SCs is quality business relations and collaboration between members of the SC (Sahay and Maini, 2002; Benton and Maloni, 2004; Gellynck *et al*., 2011). The impact of the relationship between the members of the chain on the performance of the SC has often been investigated (Benton and Maloni, 2004; Molnar *et al*., 2010; Lobo *et al*., 2013; Kühne *et al*., 2013; Mathu and Phetla, 2018), and the research of these authors confirmed that the performance of the SC is significantly improved if there is a high level of trust and attachment among the partners in the SC.

One factor that often proved as having an important influence on SC performance is SC RQ (Molnar *et al*., 2010; De Búrca and Voss, 2005; Lambert, 2008; Odongo *et al*., 2016). RQ

represents a degree to which SC members are involved in an active, long-term relationship (Razavi *et al*., 2016), which, based on their past experiences of success or failure, answers to their mutual needs and expectations (Crosby *et al*., 1990). In the literature, RQ is conceptualised as a latent variable of different components mostly derived from social psychology, such as trust, commitment, and satisfaction (Moorman *et al*., 1993; Ganesan, 1994; Geyskens and Steenkamp, 2000; Lee, 2001; Hennig-Thurau *et al*., 2002).

Due to the specificity of AFSCs and the significant differences in relation to non-AFSCs, *'collaboration'* and *'trust'* are crucial for a better flow of products and information, as well as for competitiveness and performance of the individual chain members and for the entire chains—thus providing improved contact methods and joint solutions for the growing issues related to food quality and safety, and other difficult-to-detect attributes of food products (Sufiyan *et al*., 2019).

4.2.1. Collaboration

Based on the analysis of previous research, we can conclude that the important categories of RQ in AFSCs are: appropriate inter-organisational collaboration (Mesic *et al*., 2018; Gellynck *et al*., 2011; Batt, 2003; Schulze-Ehlers *et al*., 2006; Zhang and Hu, 2011; Boniface, 2012), effective communication (Schulze-Ehlers *et al*., 2006; Chen *et al*., 2004; Kottila and Rönni, 2008), mutual exchange of information (Batt, 2003; Chen *et al*., 2004; Kottila, 2009; Boniface *et al*., 2010), resource sharing (physical, financial, human, and organisational) (Zhang and Hu, 2011; Chen *et al*., 2004; Kottila, 2009; Boniface *et al*., 2010), willingness to share risks (Bezuidenhout *et al*., 2012), transparency between partners (Puspitawati *et al*., 2011; Mutonyi *et al*., 2016), relationship quality and commitment (Schulze-Ehlers *et al*., 2006; Boniface, 2012; Bandara *et al*., 2017), and the presence of trust between partners in the SC (Batt, 2003; Boniface, 2012; Naspetti *et al*., 2011; Thorsøe, 2015; Aji, 2016; Sun *et al*., 2018). Accordingly, the most important variables of RQ in the AFSC, used in our research, will be further explained.

4.2.1.1. Inter-Organisational Collaboration

Since collaboration is based on relationships, either at the interpersonal or organisational level in the context of SCM, there is also intra-organisational or internal collaboration, which refers to collaboration within organisations, and interorganisational collaboration, which refers to the collaboration of all members in the SC (Burgess *et al*., 2006). Internal collaboration refers

to the organisation's culture of collaboration (for example, the existence of elements of trust and commitment). External downstream collaboration includes customer relationship management, while external upstream collaboration includes supplier management. There can be different levels of relationships within a SC, and collaboration in the context of inter-organisational relations is very important, because when it comes to developing the RQ between companies or SC stakeholders, it is crucial to achieve prerequisites for successful collaboration.

4.2.1.2. Quality of Communication

Another important category of collaboration and one of the prerequisites for trust is communication between business partners. Effective and efficient communication is a prerequisite for quality collaboration (Chen *et al*., 2004). Through continuous and honest communication, SC problems can be avoided, and solutions can be more easily found, which greatly simplifies and improves collaboration among SC members (Kottila and Rönni, 2008).

4.2.1.3. Information, Risk, Knowledge, and Resource Sharing

Information sharing is a key feature in the collaborative category, as information sharing not only reduces uncertainty among business partners, but leads to better efficiency, flexibility, and faster response of the entire SC (Kache and Seuring, 2014). Except for the poor availability and high prices of the products, the imbalance between supply and demand, and high operating costs, the lack of information flow between the chain actors in organic food SCs is one of main hindrances to the growth of the organic market (Kottila, 2009).

A good collaborative relationship requires not only trust and commitment, but also a willingness to share exposure to risk to achieve the mutually agreed long-term goals (Sahay and Maini, 2002). Raj Sinha *et al*. (2004) also state that one of the main contributors towards SC risk is a lack of trust. Therefore, incentives need to be put forward clearly and knowledge about risks needs to be assessed and managed properly.

Resource sharing is also one of the subcategories of collaboration and differs from information sharing in its physical nature. While the latter refers to the sharing of data and information, the sharing of resources between partners in the SC implies the sharing of physical, financial, human, and organisational resources (Barney, 1991). However, companies not only share information and resources with each other, but if they work together, they share knowledge (Kottila, 2009) and risks. As a result, uncertainty among SC members is alleviated.

Transparency between SC partners improves communication within the SC and increases information exchange, which can lead to successful collaboration and can improve overall supply (Puspitawati *et al*., 2011). Transparency is particularly important in the case of pricing (Mutonyi *et al*., 2016), which can significantly affect trust between partners and the loyalty of suppliers.

4.2.1.4. Relationship Quality and Commitment

Quality collaboration between different stakeholders in the food value chain is extremely important and depends on many factors. Wilding and Humphries (Wilding and Humphries, 2006) list ten attributes that encourage SC collaboration: reliability, long-term focus, communication, stability, win-win, trust, willingness to compensate, personal relationship, creativity, and C3 (cooperation, collaboration, and coordination). Bezuidenhout *et al.* (2012) believe that a lack of attributes, such as reliability, trust, good personal relationships, and communication, causes fragmentation, opportunism, and a desire for excessive control of individuals in the chain. Aji (2016), in her research, points out four key variables for relationship building: satisfaction, trust, and two dimensions of commitment—commitment to continuity and commitment to support. Schulze *et al*. (2006), in a study of RQ in the German pork sector, also argue that RQ must be conceived as a construct that encompasses satisfaction, trust, and commitment.

Collaboration is vital for the empowerment of small farmers, especially those in communities with low socio-economic status. As key stakeholders in the AFSC, farmers typically have limitations in business skills, aspirations, and systemic thinking; thus, they often focus heavily on their business rather than creating an integrated collaborative system. Conflicts and misunderstandings can be minimized by understanding and managing the factors, i.e., the preconditions of quality collaboration, in partnership in the AFSC.

Commitment reflects the organisation's faith and dedication to maintaining and improving relationships with partners to work together to create value in the long run. Similar to trust, it is one of the most critical behavioural factors for successful collaboration in an AFSC (Dania *et al*., 2018). Trust and commitment lead to the creation of loyalty in relation to a business partner.

4.2.1.5. Long-Term Orientation

Long-term, sustainable partnerships require a long-term orientation and high level of collaboration between all parties in the SC, and are characterized by high levels of trust, commitment, transparency, and integrity. As satisfaction increases, there are always expectations of relational continuity and the tendency of both parties to stay in longer-term relationships (Ganesan, 1994; Patterson *et al*., 1997). Satisfaction with past outcomes indicates that there is equity in the relational exchange. Equitable outcomes provide confidence that either party is not being taken advantage of in their relationship and that both parties have concern about the other's welfare (Ganesan, 1994). Where there are high levels of confidence, trust is established. Furthermore, when trust is established, both parties are more committed to their relationships (Lobo *et al*., 2013; Anderson and Narus, 1990; Morgan and Hunt, 1994; Geyskens *et al*., 1996; Zander and Beske, 2014).

4.2.1.6. Power, Dependency, and Opportunism

In addition to the previously mentioned and described factors that enhance collaboration among partners in the SC, there are also those that can negatively affect the development of collaboration and ultimately the success of AFSCs, such as excessive use of power, dependency, and opportunism.

Power and dependency are regarded as a fundamental issue in the SC. The power factor defines the ability of a person or organisation to influence the behaviour, decisions, and actions of others. Power grows from organisations that have valuable resources or control over resource allocation (Wu *et al*., 2014). The more powerful an organisation is, the more it will be able to influence the types of information shared, the recipients, and the sharing mechanism in collaborative activities. However, the power function should not be used to exploit weaknesses, but as support and assistance in finding solutions and better ways to solve partnership problems, increasing mutual benefits, and competitive strategies (Dania *et al*. 2018).

Opportunism is a risky situation in which companies and individuals seek to take advantage of a situation. In inter-organisational relations, opportunism occurs when one or more parties exploit the vulnerabilities of other parties in search of their own unilateral gain at the substantial expense of the other parties and/or the entire relationship (Capaldo and Giannoccaro, 2015). Hobbs (1996) states that the risk of opportunism increases in certain situations in SCs, where the bargaining power of the chains is not evenly distributed. For example, when there are only a few buyers of products from many suppliers, as for most

agricultural products in rural areas. Farming companies in the fresh produce SC usually have little bargaining power (Jamaluddin and Saibani, 2021). Therefore, there is a high risk that customers will act opportunistically. Some examples of opportunistic customer behaviour (e.g., retailer) are as follows: the retailer controls all information and does not share it with producers, does not treat the supplier fairly and honestly (i.e., as an equal partner in the SC), does not care about the welfare of the supplier or their interests and well-being, etc. The lower the opportunism of the SC partners, the greater the trust in the entire SC network, i.e., the greater the trust in the SC.

4.2.2. Trust

Trust is a central component of AFSCM and only in this way can the FSC be successful. Trust is an important strategic condition and one of the main factors that can improve or limit (in case of distrust) successful collaboration in the agri-food chain. In the agricultural sector, trust is more important for small and medium-sized enterprises (SMEs), which characterize the existence of personal relationships between business partners (Fischer *et al.*, 2007; Lu *et al.*, 2012).

There is no single definition of trust and different authors distinguish different forms of trust in business relationships. Trust is considered to exist if *'one side believes the other is fair or well-intentioned'* (Doney and Cannon, 1997). *'Trust can be viewed as the opposite of opportunism in business relationships. We therefore define trust as the belief that a business partner can rely on fulfilling its obligations in a situation involving risks and vulnerabilities'* (Viitaharju and Lähdesmäki, 2012).

In operational terms, *'trust'* refers to the belief that the other party is sincere and honest and under no circumstances will intentionally do anything that would damage the relationship. Quality collaboration, trust, and commitment are important prerequisites for food quality as some of the important indicators of the success of the AFSC (Ding *et al*., 2014).

For trust among business partners to develop successfully, certain preconditions of trust must be met. Different literature has identified different preconditions of trust within the AFSC. Batt (2003) identifies perceived honesty, credibility of information, reliability of promises, relationship satisfaction, compatibility of goals, and relationship investment as factors that create trust in the fresh product chain. Puspitawati *et al*. (2011) list eight precursors of trust in AFSC: communication, price transparency, price satisfaction, price quality ratio, joint problem solving, partner reputation, dependence, and relationship flexibility. Numerous authors agree

that the most important determinants of trust in the AFSC are the quality of communication achieved by communication frequency and information quality, along with a positive collaborative experience (Schulze-Ehlers *et al*., 2006; Kottila, 2009; Fritz and Fischer, 2007).

The higher the level of trust between the partners, the more likely it is for long-term collaboration to develop. After a high level of trust, quality collaboration, good communication, and strong personal relationships develop between the partners, the parties begin to engage in activities such as joint product development, co-investment, or innovation capacity development (Kühne *et al*., 2013).

4.2.3. Overall Performance

Collaboration and trust can help improve the efficiency of the AFSC. SC performance refers to the overall performance of a chain and depends on the performance achieved at each stage of the SC (Aramyan *et al*., 2007). Therefore, it is important to improve not only the performance of individual members in the SC, but of all members in the SC. The findings of one study (Jamaluddin and Saibani, 2021) showed the positive effects of collaborative relationships on SC performance, including financial, innovational, operational, environmental, social, and economic performances. In practice, there are many performance indicators that mainly depend on the specific characteristics of the SC, which is why there is no single definition of performance indicators. Measuring process performance is extremely important in an AFSC. Competitive advantage is among the main strategic goals of the AFSC and can be generated and consolidated not only through the exchange of resources and information, but also through other indicators, such as cost, delivery and delivery speed, quality, and flexibility (Chen *et al*., 2004). In this paper, performance is observed through the following variables: improvement of business processes (coordination and optimization), operational efficiency (e.g., optimal use of resources in the SC), optimization of inventories, reliability and speed of delivery, demand planning, reduction of total costs for both parties (e.g., logistics), flexibility in delivery quantity, delivery time, fast resolution of complaints (implying responding to them), customer and end consumer satisfaction, making higher profits, achieving better competitive advantage in the market, offering low prices and prices even lower than competitors, declining opportunistic behaviour (more mutual respect, work for the benefit of both parties), increased product quality, increased communication between buyer and seller, achieving mutual benefits in business, reducing risk for both parties, reducing/optimizing inventory, and introducing and/or improving online retail.

4.3. Case study: organic food market in Croatia

4.3.1. Level of Development of the Organic Food Market

Like the rest of the world and Europe, Croatia is raising awareness and concern for human health and the preservation of the planet Earth. With the raising of awareness, the area under organic agricultural production also increases. According to the Croatian Ministry of Agriculture (2021), the area under organic production in Croatia is constantly increasing. **Table 4.1.** shows the areas of used agricultural land, the areas under organic production, and the share (in percent) of areas under organic production in the total used agricultural areas of Croatia for the period from 2013 to 2020, and strong growth in organic production is evident.

Table 4.1. Areas of used agricultural land and areas under organic production in Croatia for the period from 2013 to 2020.

Year	Used Agricultural Land (ha)	Areas under Organic Production (ha)	Share of Area Under Organic Production in Total Utilised Agricultural Area (%)
2013	1,568,881	40,660	2.59
2014	1,508,885	50,054	3.32
2015	1,537,629	75,883	4.94
2016	1,546,019	93,814	6.07
2017	1,496,663	96,618	6.46
2018	1,485,645	103,166	6.94
2019	1,504,445	108,169	7.18
2020	1,506,205	108,659	7.21

Source: Ministry of Agriculture (2021).

Of the 15.6 hectares of organic agricultural land in Europe, 8 million hectares, or 7.7%, accounts for EU agricultural land (FiBL, 2020). Table 1 shows that in 2019, the share of areas under organic production in the total agricultural land in Croatia was 7.18%, which is almost identical to the EU average. However, Croatia is still in a distant 26th place when measured by area of organic agricultural land. Half of Europe's organic agricultural land is located in four countries. The country with the largest area of organic agricultural land is Spain (2.2 million ha, which is more than 14% of the total European organic agricultural land), followed by France, Italy, and Germany (FiBL, 2020).

The basis for a stronger development of organic agriculture in Croatia is the adoption of the Law on Organic Production of Agricultural and Food Products in 2001. Until the enactment of this Act in Croatia, organic agriculture was practiced by ecological

associations and enthusiasts (Grahovac, 2005). Organic food producers have recognized the potential of the market and their number is growing exponentially. Due to climatic and relief differences, clean soil and natural benefits, Croatia has the potential for the development of organic agriculture; however, its more serious further development is slowed down by numerous barriers. The fragmentation of agricultural areas, the low share of areas under organic production, unsettled property and legal relations, unsustainable production, insufficient connection or collaboration (often ignorance) of domestic producers of organic food products, inability to reach market infrastructure, and lack of strategy and long-term planning for organic agriculture (i.e., the state's commitment to organic agriculture) are unfavourable factors in the development of organic agriculture.

In Croatia, most farms engaged in organic production are small family farms (OPG), which also face several challenges. Although Croatian organic farms are small, mostly about five hectares and even smaller (Petljak, 2013; Šugar *et al*., 2020), and cannot meet some world market standards, Croatia is a country that has recorded a significant increase in areas under organic production in the last 10 years.

According to the data from the Register of Entities in Organic Agriculture published by the Ministry of Agriculture (2021), the number of entities bearing the organic food certificate in Croatia in 2019 was 5548, and the latest data indicate a further increase to 5937. Although the number of organic producers in Croatia has been growing significantly in the last 5 years, as far as processors are concerned, Croatia lags far behind other European countries. **Table 4.2.** shows the trends in the number of organic producers and processors in Croatia for the period from 2013 to 2020.

Table 4.2. Number of organic agricultural entities in Croatia from 2013 to 2020.

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Agricultural producers	1608	2043	3061	3546	4023	4374	5153	5548
Processors	181	237	320	312	357	368	395	389
Total	1789	2280	3381	3858	4380	4742	5548	5937

Source: Ministry of Agriculture (2021).

4.3.2. Distribution Channels of the Organic Food Market

Distribution channels for organic food products in Croatia are mainly related to the terms 'local market', 'alternative market', 'direct sales', and 'short supply chains' because most organic products in Croatia are still sold through direct channels, and a smaller percentage of

domestic producers distribute their products through retail (Petljak, 2013). The results of the Hamzaoui-Essoussi and Zahaf (2008) study showed that small communities tend to support local organic food producers for three reasons: (1) low availability of organic food in supermarkets in small communities, (2) higher consumer confidence in local farmers than in retailers, and (3) direct marketing and distribution of food products from the local supplier to the consumer. Combining sales in short chains with organic farming practices is associated with higher farmer income, and economic performance depends not only on factors at farmer and farm-level (especially skills and labour organisation), but also at chain and territorial levels (e.g., degree of local competition and profit margin allotted to the intermediary) (Chiffoleau and Dourian, 2020). Retailers need to be aware of the different needs of consumers in small communities compared to large cities. For example, price does not significantly affect the customer's purchase decision, but customers' trust in the manufacturer is more important.

The main distribution channels for organic products on the European market are indirect, i.e., supermarket chains followed by specialized stores.

Digital technologies, such as big data and the Internet of Things (IoT), are widely considered as promising new tools for both increasing productivity and competitiveness in the agri-food sector and ensuring a more sustainable use of resources. Knowledge and insights derived from ever-increasing volumes and a variety of digital data may help to optimize farm production processes, improve risk management, predict market trends, and enhance strategic decision-making capabilities (Kosior, 2018). The digitization of the agri-food sector is a strategic priority in the political agenda of European institutions, and new technologies together with digitalisation are transforming agriculture and offering new opportunities to improve policy. The opportunity to improve the competitiveness and efficiency of the sector offered by new technologies comes together with its potential to face new economic and environmental challenges (Jorge-Vázquez *et al*., 2021).

With the development of technology and the internet, more and more businesses are doing business through online channels, which makes their products easily available to consumers almost around the world. Consumers on the other hand, with the faster lifestyle and need to save as much time as possible, have embraced this new online channel for shopping to meet their needs. The online channel has experienced exponential growth especially during the COVID-19 pandemic due to the prohibition or limitation of the business of traditional retail channels, fear of citizens of a pandemic, and many people with self-isolation measures and quarantines for which it was the only way to buy products. Due to the occurrence of the COVID-

19 pandemic, the e-commerce industry has experienced rapid development (Zhu *et al*., 2021), and agricultural producers have also adjusted to intensively use this distribution channel for the sales of their products. Very often, e-commerce is especially used in organic food purchase, especially in western European countries. The various alternatives that allow consumers to purchase organic products online now include the websites of major food retailing chains, which compete with smaller companies that operate exclusively on the internet. The internet has also become a powerful relational marketing tool that acts as an instrument of social interaction, making it possible not only to attract consumers but also to secure consumer loyalty. Consequently, a mechanism to boost the home market consumption of organic products can be found in technology (Mozas-Moral *et al*., 2016).

Only a few Croatian organic food producers can compete in retail chains with foreign organic producers. The reason for this is the low ability of farmers to operate independently in the market. In addition, distribution within the organic food sector is quite inefficient. Although there is interest in expanding the organic food market, there is a lack of studies that address the distribution channels of organic food in developing countries, such as Croatia (Gajdić *et al*., 208).

Prior research has shown that usage of distribution channels for organic food products depends on different stages of development of the organic market in individual countries (e.g., emerging markets or mature markets), and organic producers also market their products through different channels (Orsini *et al*., 2019; Zander and Beske, 2014; Hamzaoui-Essoussi *et al*., 2013). Additionally, due to the specifics of organic production and the small production quantities, depending on the number of stakeholders involved and the type of product (fresh or processed), distribution channels may look different. **Figure 4.1.** shows an overview of the usual distribution channels for organic food products in Croatia. Organic food producers in Croatia mostly use direct distribution channels (on-farm sales, specialized fairs, and home delivery) because they produce small quantities and mostly produce fresh organic products (Gajdić *et al*., 2018). In terms of indirect distribution, specialised stores are the dominant form of retail, especially when it comes to organic products, followed by wholesale. Domestic supply generally cannot meet demand and domestic retail chains selling organic products offer a variety of imported products. A small number of organic producers sell their products through small grocery stores and emerging distribution channels, such as hotels, restaurants, and cafes (Ho-Re-Ca).

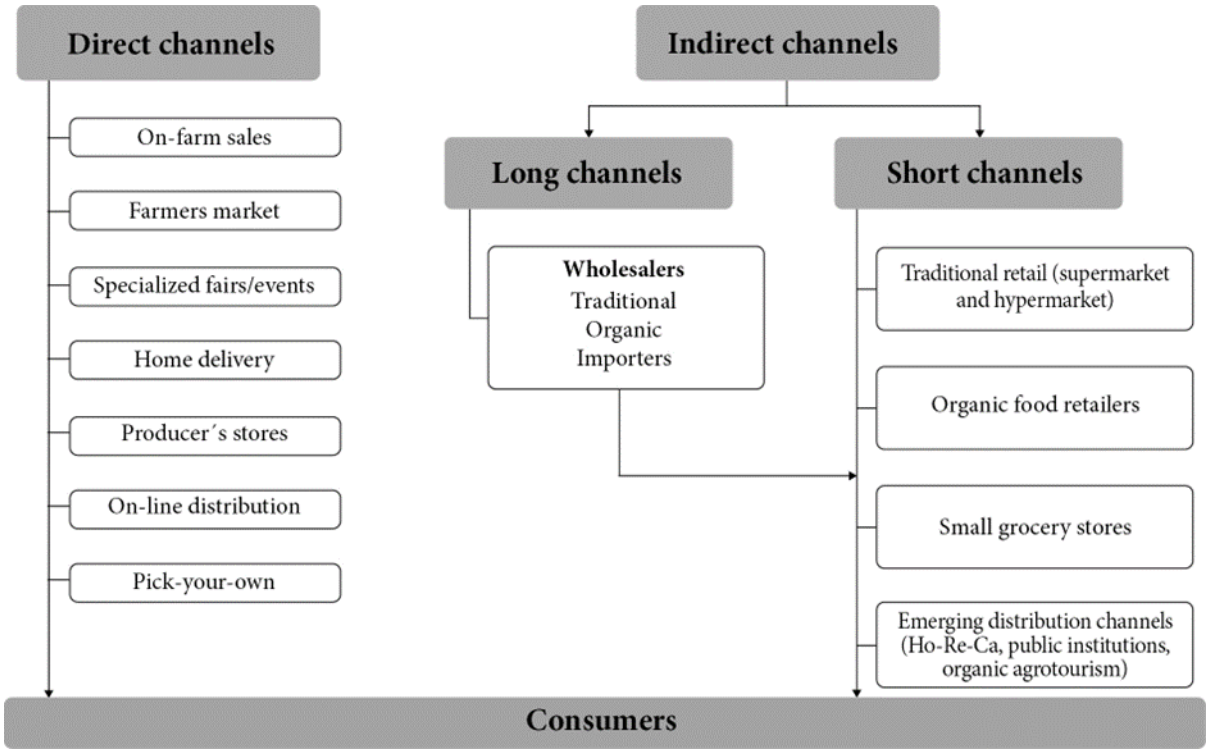

Figure 4.1. Distribution channels in Croatian organic food market.

Source: own interpretation

4.4. Empirical research

4.4.1. Methodology

Figure 4.2. shows a detailed elaboration of our research design (i.e., steps of research design, objective, techniques used, and outcome). In this study, we used in-depth interviews that provided better access to the thoughts, attitudes, and motivational ideas of organic food producers (according to Hingley and Lindgreen, 2006). Respondents were informed that the data provided during the in-depth interview would be used exclusively for scientific purposes, and that the individual data on organic food producers would not be used, but only aggregate data, which would guarantee the anonymity of the research.

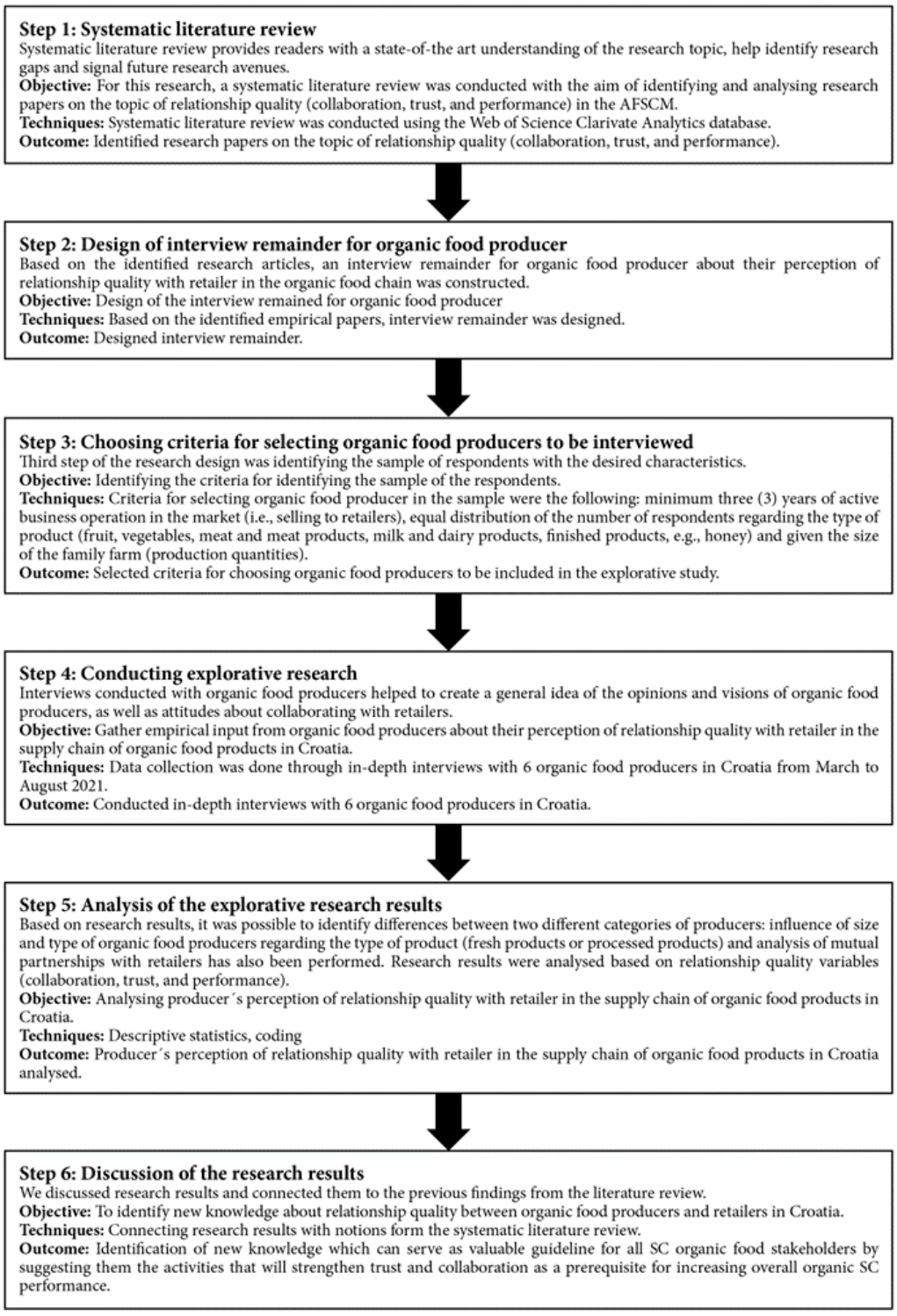

Figure 4.2. Research design

First, a sample of respondents with the desired characteristics was found. Criteria for selecting the organic food producers in the sample were the following: minimum three (3) years of active business operation in the market (i.e., selling to retailers), equal distribution of the

number of respondents regarding the type of product (fruit, vegetables, meat and meat products, milk and dairy products, and finished products, e.g., honey) and the size of the family farm (production quantities). This study was an exploratory field study in the Croatian organic food market. Using a semi-structured interview questionnaire[3], data collection was performed through in-depth interviews with six organic food producers in Croatia from March to August 2021.

Interviews conducted with organic food producers helped to create a general idea of the perceptions and visions of organic food producers, as well as attitudes about collaborating with retailers. It was also possible to identify differences between two different categories of producers in the influence of the size and type of organic food producers regarding the type of product (fresh products or processed products). An analysis of mutual partnerships with retailers was also performed.

The interview questions covered several topics (Hingley and Lindgreen, 2006; Dibb *et al*., 1997) and the interview reminder consisted of 4 parts. In the first part, the respondents were asked about the structural characteristics of their production unit and their motives for engaging in organic production. The second part consisted of questions about the market and distribution of products (where they sell products and through which distribution channels). The third part focused on the relationship between producers and retailers of organic food products, with an emphasis on collaboration, trust, and performance. The last part was of an open type and referred to proposals for market development. Within the third part, organic food producers were asked about: inter-organisational collaboration, quality of communication with buyers (retailer), information, risk and resource sharing, relationship quality and commitment, long-term orientation (common plans and interests), power, dependency, opportunism, trust in the buyer, and overall SC performance.

The questions were deliberately expanded to allow respondents as much freedom as possible in their answers. However, in this paper, we focus on the third and fourth part of the interview reminder, which contains topics important for this discussion and textual evidence from the interview. The research findings were taken from the respondents themselves, which provides much more information and helps the goal of the research. All interviews were first recorded to increase data accuracy (Patton, 1987) and later transcribed to allow detailed analysis (Hingley and Lindgreen, 2006; Uddin, 2017).

[3] Interview remainder available upon request

Intra-case analysis involved writing a summary of each individual case to identify important facts, with a special focus on the main category of perceiving differently the main indicators of collaboration quality and relations with retailers. Following this process, a coding scheme was developed to assist in cross-case analysis (Patton, 1987; Corbin and Strauss, 2008) that included identifying similarities and differences in the attitudes of Category 1 and Category 2 respondents (Hingley and Lindgreen, 2006), which is shown in **Appendix C** The respondents were divided into two categories according to the intensity of their collaboration with the retailers. Category 1 consisted of two organic food producers who sell more than 50% of their products through retailers, while Category 2 consisted of four organic food producers whose dominant sales channel is direct selling at fairs and home delivery (approximately 80%) while the remaining 20% of sales is accomplished through the retail channel. Both Category 1 and Category 2 producers perceived differently the main indicators of quality collaboration and their relations with the retailers due to the size of the producer (i.e., its production capacities), different product characteristics (fresh products or processed products), and collaboration with the different retailers regarding their size and specialization. The gender structure of the sample was 50.0% men and 50.0% women. The age structure of the sample slightly shifts to older respondents. Furthermore, half of the respondents had completed secondary school and other half of the respondents completed high school or had a university degree. Five producers were registered as family farms, while one producer was registered as craft. Most producers (66.7%) stated that employees were family members and themselves. The key motives for organic production were primarily personal beliefs of producers (n = 3), followed by self-employment (n = 2), and health reasons (n = 1).

4.4.2. Results

The analysis of the results follows, with the inclusion of presentations of the key primary research evidence that was used in drawing conclusions. The main text discusses the research findings and provides some textual evidence supporting the statements from the interview reminder, and table in **Appendix C** contains additional abbreviated textual evidence for each of the two categories of respondents on the similarities and differences in their responses. A review of the literature, as well as the coding scheme, also facilitated in reporting the research findings.

4.4.2.1. Research results of Inter-Organisational Collaboration

Category 1 producers mostly achieved formal/contractual collaboration with the specialized organic food retailers and with large retailers, such as retail chains, and to a lesser extent with small retailers. Contracts with the specialized retailers defined the quantities in advance, while contracts with large retailers were undefined in terms of quantities and deliveries were based on weekly supply and demand, rendering such sales unsafe for the producers. In addition, retailers required strict and controlled product quality. On the other hand, collaboration with small retailers was often informal and based on agreement and mutual trust, which is also typical of the smaller Category 2 producers. They mostly did business with small retailers because they could not provide the required quantities for the large ones. In spite of the flexibility, it was difficult for them to plan quantities because orders lacked continuity. Both categories of producers deemed that each side was oriented towards achieving its own goals, that there was no joint business planning, and that retailers mostly sought earnings. In both cases, positive past collaboration significantly affected the acquisition of trust in the relationship.

4.4.2.2. Research results of Quality of Communication

Category 1 producers considered that they had quality, open, and frequent communication, especially with the specialized retailers that had departments in charge of informing their suppliers (e.g., about changes in legislation, standardization, etc.). Although they mostly communicate indirectly (online, etc.), they pointed out that it was very important for them to communicate 'face to face' with the retailers as often as possible. Category 2 producers mainly communicated informally with their buyers and also considered communication to be of high quality and very open. Both categories of organic food producers stated that communication with the retailers had a positive impact on the performance of their collaboration. Both groups of organic food producers affirmed that the first contacts with the retail distribution channel were mainly established at specialized eco-fairs, and that the frequency of communication depended significantly on the type of the product (fresh or processed).

4.4.2.3. Research results of Information, Risk, Knowledge, and Resource Sharing

Category 1 producers generally exchanged information with the retailers about the quantities and quality of their products. With the specialized retailers, this information was

timely, specific, and more accurate than with the other retailers, and it was consequently described as high quality, open, and honest. They even had an understanding regarding possible changes in the quantities of production in case of unforeseen circumstances. Specialized retailers also informed their suppliers about changes in legislation, in demand, etc. Sometimes they intervened with financial aid, for example in the form of an advanced payment so that the producer could prepare the product, and occasionally they engaged in joint promotions.

Category 2 producers pointed out that they had a more personalized relationship with small retailers and that there was a better interaction with the small retailers in terms of information about the demand for their products. In this way, long-lasting trust was created. However, retailers did not provide them with financial assistance and joint promotions. Unfortunately, both groups of producers were consistent in the conclusion that retailers were not interested in participating in the development of new products and found it difficult to accept them, and that there was no sharing of resources, such as warehousing, transport, etc., nor of production risks. In addition, retailers did not inform the organic food producers about the creation of and changes in retail prices, and there was no sharing of information about business performance.

Collaborative integration between actors in organic SCs is an opportunity to exchange information, expand knowledge, and solve problems together. Farmers must deepen their knowledge and skills regarding production technology, market conditions (e.g., new forms of sales and distribution channels, promotional activities), and formal and legal procedures as well as strengthen their competitive advantage over other market participants (Mazurek-Kusiak *et al*., 2021). Networking with the various actors in the organic food sector is recommended, especially with retailers.

4.4.2.4. Research results of Relationship Quality and Commitment

Category 1 producers believed that specialized retailers were reliable and secure customers and were mostly satisfied with the quality of the relationship. Although they did not participate in production planning, specialized retailers showed understanding for the producers' problems regarding agricultural production. If problems arose, the retailer was ready to help and resolve them promptly. The producers expressed loyalty and commitment to the retailers, as working with them enabled them to develop professionally. Even if they had offers from alternative buyers, they would continue selling to their retailer (buyer).

Category 2 producers emphasised that their collaboration with the retailers, who were mostly trustworthy, was improving steadily. They were mainly committed to a quality relationship and collaboration with their retailers. Both categories of organic food producers solved problems and disagreements with the buyers quickly and often informally. Disagreements between retailers and producers were mostly rare, but both groups reported much less intensive collaborations with the large retailers.

4.4.2.5. Research results of Long-Term Orientation

Category 1 producers stressed continuous efforts on improving long-term collaborations with their retailers and agreed that both parties invested significant efforts in developing quality long-term relationships and often discussed their mutual expectations. They also worked together on planning future demand. However, Category 2 organic food producers did not work continuously on improving long-term collaboration and generally did not discuss mutual expectations with their retailers. Both categories of producers did not collaborate with their retailers on joint production planning and the development of new products. All expected to continue and further develop their existing collaborations, but they were also open to collaborating with other, alternative retailers.

4.4.2.6. Research results of Power, Dependence, and Opportunism

Both categories of organic food producers believed that, with the large retailers, the amount of production could affect their bargaining power. However, they also pointed out that as production increased, they became increasingly dependent on the retail chains. They also agreed that retailers had more bargaining power in the SC, although still not full power. All organic food producers stated that there were alternative buyers on the food market for them. The first category believed that product quality also had a significant impact on their bargaining power (especially with regard to processed products). Additionally, they felt that smaller customers did not dominate as much, that they were more flexible, and that they sometimes took products that they had not ordered. However, they ultimately said that ‘it turns out that retailers impose conditions’ because the producers must comply with what the retailer requires (quantity, method and time of delivery, etc.) i.e., through contracts. Both categories of organic food producers agreed that the retailers did not always follow only their own interests but respected the traditions and beliefs of the organic food producer.

4.4.2.7. Research results of Trust

Category 1 organic food producers had great trust in the retailers, due to the high integrity in the SC and to their long-term collaboration as the basis of the trust. They believed in the sincerity of the retailers' advice and expertise, as well as in the information and data they provided. They believed that the retailers generally kept their promises and treated them fairly and justly; hence, in the case of uncertain circumstances, they would remain loyal to the retailers. Furthermore, in terms of trust, they would recommend collaborating with their retailer to other suppliers. Nevertheless, the second group of organic food producers did not have complete confidence in their retailers. They believed in the expertise and the advice that the retailers shared with them, but they did not fully trust the information. Trust was also based on long-term collaboration and good reputation in the market, i.e., with the consumers. Customers were generally honest and kept their promises, but relationship problems could undermine customer loyalty. Since they felt that their retailers generally treated them fairly and justly, they would recommend their buyers to other suppliers.

4.4.2.8. Research results of Overall Performance

Regarding the impact of collaboration and trust on business performance, Category 1 producers believed that collaboration and trust had a significant effect on improving communication, reducing business risk, and optimizing the use of resources and inventories in the SC as well as demand planning, the speed of resolving complaints, forming prices lower than the competition's, introducing and/or improving online business, and reducing opportunistic behaviour of retailers. They also believed that the quality of collaboration and trust in the retailer influenced them to increase profits, improve product quality, and achieve a better competitive advantage. Collaboration and trust did not significantly affect their operational performance, such as reliability and speed of delivery and lead time.

In Category 2, completely opposite perceptions of organic food producers were identified, as collaboration and trust significantly affected the reliability and speed of delivery and lead time. However, they did not significantly influence the optimization of the use of resources, SC optimization, demand planning and complaint resolution, lower-than-competition pricing, increasing profits, introduction and/or improvement of e-business, the quality of communication, the reduction of business risks, or the reduction of opportunistic behaviour by the retailers. In short, collaboration and trust did not affect the improvement of product quality in the slightest.

In addition, the findings of the study showed the positive effects of collaborative relationships on supply chain performance, including financial, innovation, operational, environmental, social, and economic performances (Jamaluddin and Saibani, 2021).

4.4.2.9. Suggestions for Market Development

All producers also perceived the problems in the market of organic agri-food products and gave the following recommendations for the development of that market. As one of the bigger problems, they pointed out the poor information about organic products for consumers, who often do not notice the difference between domestic, peasant, and organic production. They believe that more effort should be put into promotion, in which the competent institutions should be involved. The representation of domestic products in stores needs to be strengthened, and retailers should reduce margins so that organic products are more affordable for consumers. They believe that the control of organic producers should be strengthened, due to the unfair competition of producers who present themselves as such. The association of organic food producers, the construction of joint distribution centres with the necessary infrastructure, and the organisation of special stands for organic producers in the markets were some of the other proposals. They also believe that producers should be more oriented towards processing, as this would allow them to be present on store shelves and to achieve greater added value for their products.

4.5. Discussion

The results show that inter-organisational collaboration with retailers is of greater importance for Category 1 producers because they sell about 50% of their products through retail channels. Organic food producers recognize the importance of working with the retailers to make sales easier. Contracts with the specialized retailers that define conditions enable better production planning and better development of trust in the retailer. A study (Uddin, 2017) found that some producers use contracts for making an investment or promoting a product, which is important to ensure their brand image among the customers. Additionally, Australian vegetable growers prefer contractual relationships to ensure stable prices. This finding is in line with another study (Schulze-Ehlers *et al*., 2006) where the authors found that contracts are a highly preferable option for vegetable producers in bringing down the price risks.

The sale of products to large retailers is not safe for organic food producers because the contracts are not pre-quantified, which affects the uncertainty of production for the organic producers and can cause surpluses or shortages. In general, there is no lasting and secure collaboration and there is a great deal of uncertainty. According to (Amentae *et al*., 2018), the higher the uncertainty in the chain, the lesser the trust will be. As collaborative advantages among the chain partners and their willingness to collaborate increases, trust builds up. Uncertainty occurs with smaller organic food producers (Category 2) who mainly collaborate with smaller retailers, because this collaboration is not safe nor concretely and clearly defined. The agreements are based on the ordered quantities, on which the rebates or sales prices also depend. Smaller stores mostly work with smaller organic food producers, and they find it difficult to commit to buying certain quantities of products regularly. On the other hand, it is the flexibility in order quantities here that is a favourable feature. Collaboration with small retailers in both cases is mainly based on trust and verbal agreements. In this way, organic food producers and retailers communicate more often, relationships are more flexible, and it is easier to adapt to market changes, which is in line with the findings of (Sahara and Gyau, 2014).

Category 2 organic food producers still prefer to sell products directly because they have little bargaining power compared to large retailers. In addition, since their production is small, it is more profitable and safer for them to sell directly to final consumers, where there is no delay in payment. This research showed that the producers are not dependent on retailers because they sell small quantities (about 20% of total production), which does not affect their profits significantly. This is contrary to the research of Sun et al. (2018). According to their findings (Sun *et al*., 2018), due to the significantly higher number of suppliers compared to buyers of organic products, suppliers must rely on retailers or distributors in many ways to secure their profits. Given that countries differ significantly in the level of organic food consumption and production, especially in relation to the share of conventional production, Orsini *et al*. (2019) conducted a study in eight EU countries and divided organic food markets into mature and new markets. The organic market is developed in Germany, France, Great Britain, Italy, and Spain, while Hungary, the Czech Republic, and Estonia have new organic markets. The Croatian organic food market is also one of the new markets in terms of its characteristics. Findings of FiBL (2020) and the research by Orsini *et al*. (2019) show that most organic food in Europe's mature markets is sold through supermarkets, while a smaller number of organic food farmers sell their products directly to consumers or through 'alternative' chains, such as specialized organic food shops, box schemes, markets, etc. These data were not

specified for specific products and depending on the type of product the distribution channel can differ significantly. The results from Orsini *et al*. (2019) do not confirm a clear distinction between mature and emerging markets, as shown in previous studies (Hamm and Gronefeld, 2004; Padel and Midmore, 2005). However, our study confirmed that the Croatian market belongs to the new market category, and is still underdeveloped in terms of demand, where organic food is still mostly sold through direct distribution channels, although this can sometimes be influenced by the type of product (fresh or processed) and not only the phase of development of the organic food market (Orsini *et al*., 2019). The problem with distribution through retailers, in relation to direct sales, is both strict standardization and quality requirements, especially for fresh products (size, colour, etc.), which is difficult to achieve in agricultural production, especially organic. Product quality is an important aspect of contractual collaboration in the Indonesian supermarket channels (Sahara and Gyau, 2014). Our study showed that, due to the standardization requirements and often undefined contracts, organic food producers often have surpluses that they try to place on the market through direct sales channels.

The results also show that organic food producers are generally satisfied with their communication with the retailers. Orders or quantities depend on the type of product and the season, which significantly affects the frequency of communication; communication is more frequent in the season, but often sporadic as there is no continuity in orders. In selling fresh products, the communication is dynamic ('you have to be always ready'), and 'just in time' delivery is expected; hence, communication by phone or by e-mail takes place on a daily basis. Processed products require less active communication due to their longer shelf life. Producers communicate with the retailers mainly about orders, deliveries, and collecting goods. Moreover, the findings of (Kottila and Rönni, 2008) indicate that the communication between the retailers and the suppliers of organic food products is somewhat limited to short-term activities concerning the role and terms of the products in their focal assortment. The same authors believe that the farmers' mistrust towards the retailers suggests that some form of communication is necessary for the creation of trust; however, they point out that the frequency and the form of communication are less important than its quality. In our study some of the smaller producers believed that they were 'still learning to communicate' with retailers. Informal collaboration also results in informal communication that is high quality and open but does not significantly affect its success. The research results from Fischer (Fischer, 2013) indicate that trust in SC partners can be improved significantly by effective communication and

by positive past collaboration. We believe that quality communication can only be achieved if relevant information, knowledge, resources, and risks are shared, especially from the point of view of small farmers who are at a disadvantage compared to the retailers. According to Sun *et al.* (2018), retailers are usually in a dominant position in AFSCs, and when they attach importance to sharing information the suppliers will perceive it as fair.

The results of this study indicate problems in the exchange of information between organic farmers and retailers. The exchange of information depends a great deal on the type of retailers with which the organic food producers collaborate. Retailers do not exchange information about production processes because retailers are less informed and have less knowledge about it than producers; thus, there is a sharing of knowledge about market factors but not about organic production. Poor knowledge sharing is not unique to organic chains but is found in other food chains as well (Kottila, 2009). Findings of Anastasiadis *et al*. (2015) point to the problematic flow of information within the SC resulting in minimal trust among stakeholders. However, our study showed that although organic food producers are not completely satisfied with the exchange of information, given the type and quantity, they still believe that the information received from retailers is mostly accurate and timely. Consequently, the exchange of information did not significantly affect the trust in retailers because trust is mostly built on previous experience of quality and fair collaboration. Producers bear the risks of production, payments, and infrastructure investments, and retailers are not willing to share these risks with them. They receive no support in terms of infrastructure, as retailers do not provide logistic infrastructure (e.g., transport, cooler storage, and warehouse space). The development of infrastructure (warehouses, cold stores, packaging plants, processing plants, etc.) is crucial for better long-term collaboration. In their studies, Lu *et al*. (2006) and Uddin (2017) argued that mutual investment can activate the buyer–seller relationship, enhance business transactions, and improve SC efficiency and performance. Additionally, retailers do not exchange information about the retail prices and margins that they define, and the latter may vary from 10 to 40%. They very rarely work on joint promotion, although producers point out that the best promotion for them is word of mouth, which is achieved through direct sales and direct contact with consumers. According to research by Callado and Jack (2017), customer satisfaction, not financial sustainability, is the driver of collaboration between SC partners and one of the important indicators of SC success. Alternatively, while retailers share information on sales and demand for the products, they do not inform the producers on customer needs and satisfaction. This is unfortunate, as it is very

important for the organic SC to achieve greater communication with consumers due to the development of the organic market. Collaborative integration between actors in organic SCs is an opportunity for exchanging information, expanding knowledge, and solving problems together. Farmers have to deepen their knowledge and skills regarding production technology, market conditions (e.g., new forms of sales and distribution channels and promotional activities), and formal and legal procedures, and strengthen their competitive advantage over other market participants (Mazurek-Kusiak, *et al*., 2021). Networking with the various actors in the organic food sector is recommended, especially with the retailers.

Our research results indicate that both categories of organic food producers are mainly satisfied with the quality of the relationship that they accomplish with the retailers who mostly fulfil their expectations. They are very committed to a quality relationship and collaboration with their retailers. Producers have been improving their collaboration with the retailers who are more aware and for whom the offer of organic products is important. These are mostly small or specialized retailers who are much more flexible, and their relationships are more based on interpersonal trust. It is necessary to enhance quantity planning so that producers do not encounter problems with surpluses or shortages of production. On the other hand, collaboration and relationships with large retailers are not guaranteed nor permanent and are mostly purely business relationships and not friendships. Organic food producers are not completely satisfied with the prices that their products attain; however, price satisfaction does not seem to have the strongest impact, which is consistent with the findings of (Schulze-Ehlers *et al*., 2006).

Both categories of organic food producers deem that their buyers have a good reputation in the market, which can significantly affect their performance and recognition of their product with consumers. When farmers believe that a buyer will be more successful in the long run, they consider the quality of the relationship more favourable (Schulze-Ehlers *et al*., 2006). In addition, the results of a study by Mesić *et al*. (2018) confirm the positive and significant influence of reputation on SC performance. Retailers, apart from the specialized ones, do not know enough about the specifics of organic production, nor do they promote the advantages of organic products enough. All organic producers agree that trust, reliability, and safety depend hugely on the quality of the product. After years of collaboration and continuity in quality, personal trust (*xinyong*) develops close relationships (*guanxi*) between the actors. The findings of a study by Lobo *et al.* (2013) suggest that *xinyong* is the key mediator between *guanxi* and the supplier's loyalty to the buyer and financial performance. Satisfaction has a positive effect on the farmers' commitment. The positive impact of satisfaction on commitment supports a

study by Sahara and Gyau (2014). Farmers feel satisfied when their buyers provide favourable economic rewards (e.g., offer satisfactory prices), when the farmers' expectation of what they should receive has been met, and when their buyers quickly respond to their complaints.

The results of this study show that larger Category 1 producers are investing more effort into developing long-term collaborations. For them, this sales channel is important because they sell about 50% of their products through retailers. However, Category 2 producers are smaller and they collaborate less with retailers. It could be concluded that they are still developing relationships with their retailers. Insufficient production is currently the biggest obstacle to product placement through retail channels and, consequently, the development of long-term collaboration. It would be important for organic producers to develop collaboration with specialized retailers where consumers of organic products gravitate. For small producers, sales through retailers would be more important outside their area, i.e., all over Croatia, because direct sales are a simpler and more acceptable distribution channel for reaching the nearby consumers.

Organic food producers believe that long-term collaboration also tends to be hindered by the retailers' high margins, which make their products inaccessibly expensive in stores. Therefore, they consider trust as the basis for the development of long-term collaboration. Recent research, as well as this study, has confirmed that trust is important in developing long-term collaboration between farmers and retailers and an important driver of integration and collaboration within food SCs, which is contrary to previous research (Selnes, 1998; Hogarth-Scott, 1999; Dapiran and Hogarth-Scott, 2003; Lindgreen *et al*., 2005). For example, Dapiran and Hogarth-Scott (2003), in their study of food retail in the UK and Australia, argue that collaboration and trust are not the same; Hogarth-Scott (1999) believes that power is the functional equivalent of trust, producing the same outcome, and collaboration is the result.

According to research by Sun *et al*. (2018), suppliers perceive high levels of distributive fairness if they sell their products at satisfying prices. The procurement prices offered by the retailers and the prices at which they sell the products to the consumers are the key factors for distributing the common incomes of the AFSCs and are also connected to the suppliers' profits. The results of this research have revealed that procedural fairness has a strong positive effect on trust and commitment. The greater the level of trust among the chain actors, the higher the probability for the development of long-term collaboration (Batt and Rexha, 2000). As the satisfaction of farmers increases so does trust, which leads to long-term commitment to the relationship (Aji, 2016). Willingness to collaborate affects trust and vice versa (Amentae *et al*.,

2018). Trust fosters long-term relationships (Ganesan, 1994), reduces opportunistic behaviour (Morgan and Hunt, 1994), and increases the competitiveness and the performance of SCs.

Dependence on the retailer is more pronounced with larger producers, which is associated with higher production volumes and higher product placement through retailers, as well as with the quality and type of products (fresh or processed). High-level dependence might lead to uncertainties and opportunistic behaviours, resulting in conflicts that may negatively affect the overall collaboration and performance (Zhang and Huo, 2013). Producers who have high-quality products, especially processed products (e.g., olive or pumpkin oil), also have greater bargaining power, especially with regard to negotiating prices. The fact is that small farmers who are highly disorganized and lack support in infrastructure have a weak bargaining power (Fischer *et al*., 2007; Malagueño *et al.,* 2019). However, the findings show that low bargaining power is not a problem for them at present as they do not depend on the retailers who are only an additional sales channel. For them, direct sales are more acceptable because they can dictate the prices of their products.

Retailers, on the other hand, form prices that are often much higher than those that the producers can achieve by direct sales. The growing bargaining power in the retailer sector seems to have a major influence in setting the product prices and distribution of margins within the chain (Uddin, 2017). The use of power can reduce the quality of the relationship, which then affects the operational efficiency of the supplier (Bandara *et al*., 2017). On the other hand, in their study, Kottila and Rönni (2008) found that neither power imbalance nor difference of values form insuperable obstacles to the establishment of collaborative relationships in organic food chains and that quality communication is necessary for the creation of trust.

Trust is a crucial element in the AFSC due to the characteristics of food products, some of which may only be analysed after consumption, such as experience characteristics, and some may not be examined at all, such as credence characteristics (Uddin, 2017). The results of this study show that organic food producers trust their retailers quite entirely. Their trust is based on good past collaboration and good reputation of the retailer. Furthermore, trust and loyalty are more pronounced in relation to larger organic food producers and specialized organic food retailers. Organic food producers believe in the expertise, honest advice, and information that the retailers share with them. However, they believe that personal trust has not yet developed between them (*xinyong*), which is associated with honesty, credibility, reputation, and integrity of an individual based on a gentleman's word (Lobo *et al*., 2013). The results of this study showed that, in addition to giving organic food producers better bargaining power, they also

influence the development of trust between producers and retailers. In other words, a product that shows good potential in the market involves a minor economic risk for the retailer. This enables the development of trust in the product and more generally in the producers supplying the product (Viitaharju and Lähdesmäki, 2012).

Literature shows diverse antecedents or determinants of trust in AFSCs (Batt, 2003; Schulze-Ehlers *et al*., 2006; Puspitawati *et al*., 2011; Fritz and Fischer 2007) and the importance of developing trust for AFSC performance. However, some previous research indicates a lack of trust among stakeholders in organic SCs, e.g., due to problematic information flow within the SC (Anastasiadis and Poole, 2015), lack of trust caused by lack of quality communication which particularly affects the personal and process dimension of trust (Kottila and Rönni, 2008), low perceptions of organic food producers' trust in retailers who rely more on the contractual relationship than on trust as a prerequisite for good collaboration (Uddin, 2017), etc. However, this research confirmed that a number of preconditions for the development of trust have been met between organic farmers and retailers, such as relationship satisfaction, contractual relationship with specialized retailers, quality of communication achieved through frequent communication, joint problem solving, partner reputation, flexibility in the relationship, reliability, goodwill, commitment, and positive past collaboration. On the other hand, the following preconditions for the development of trust and quality collaboration have not been fully met: credibility of information, reliability of promises, goal compatibility and investments, price transparency, price satisfaction, and personal trust.

Due to the specifics of AFSCs and the characteristics that distinguish them from other SCs, it is difficult to measure their performance (Callado and Jack, 2017). Performance indicators of AFSCs are grouped into four main categories that contain financial and non-financial performance indicators (Aramyan *et al*., 2007; Singh *et al*., 2018; Jie *et al*., 2013): efficiency, flexibility, responsiveness, and food quality. Each of these main categories contains several different performance indicators. Efficiency measures the optimal use of resources in the SC and aims to maximize the added value of the process and minimize costs. Flexibility is the ability to adapt to a changing environment, and can be measured, for example, through flexibility in delivery or customer satisfaction. Responsiveness is the speed at which the SC delivers products to the customer. Food quality and food safety are special characteristics of food SCs that imply the quality of products and processes. The results of this study show that collaboration with the retailers affects the financial performance of the larger Category 1 producers, which is reflected in higher profits and competitiveness based on the ability to sell

at lower prices than the competition and a partial reduction in costs. The results of the study by Naspetti *et al*. (2011) also show that in organic SCs, greater trust results in greater collaboration, which in turn will result in greater non-financial and financial impacts whereby the effect of trust on financial performance is not direct but mediated by higher collaboration. Effective collaboration with specialised retailers has contributed to the professionalism of larger organic food producers, especially in terms of standardization and food quality. This is in contrast to the findings of Naspetti *et al*. (2011), which indicate that there is no evidence that collaboration actually improves product quality and safety in organic food SCs. Contractual collaboration with the retailers contributes to production expansion, better production planning, and affects the expansion of family farms and employment. In their research, Bandara *et al*. (2017) found that RQ and collaboration performance are positively related to the supplier's operating results. However, the problem occurs with large retailers who offer more European and well-known brands that are more recognizable to the consumers, which results in the Croatian products often being 'lost' on the shelves. In addition, sales to large retailers are not safe for the producers because the contracts are not defined in advance in terms of quantity and time, which affects the certainty of production and sales for the producers.

Given that the volume of sales through the retailers for smaller organic food producers is significantly lower (maximum 20% of total sales), collaboration and trust cannot significantly affect their financial and non-financial performance indicators. They mainly sell to small retailers and often depend on their monthly or seasonal sales dynamics. Reliability and speed of delivery are based on the flexibility of producers and trust in retailers. In the research conducted by Lobo *et al*. (2013), the authors confirmed that collaboration with the customer based on informal relationships and personal trust can significantly affect the loyalty and financial performance of suppliers. Collaboration with small retailers at the local and regional levels is considered successful, especially regarding fresh products (short SC). However, this sales channel is not crucial for them as it does not significantly affect their revenues and their competitiveness. They are more oriented towards direct sales where they achieve better interaction and communication with the end consumers, higher prices for their products, and ultimately higher profits. Collaboration with the retailers could affect performance, if they had larger quantities of products and thus could expand in the market (they could go beyond the local and regional market). In addition, small producers often do not have developed sales skills due to their production-orientation, which means that selling through retailers can significantly

facilitate their marketing and promotion and allow them more time for what they specialise in, i.e., production.

4.6. Managerial implications, limitations, and future research directions

Given that this is the first time a study was conducted about the organic food producers perceptions of relationship quality with retailers in the organic food SC in Croatia, this research represents an important contribution to business practice. The results of this research can serve as an informative basis for all members of the SC by encouraging them to reach proactively to improve collaboration and trust, which can lead to overall performance improvements in the organic food SCs.

However, this study also has some limitations. We collected data from only six different organic food producers, in terms of their size, length of collaboration with retailers, share of sales through different distribution channels, and different product types (fresh or processed), to investigate the SC relationships between organic food producers and retailers. Although such small sample sizes are not unusual in AFSC research, especially as they provide deeper insights into problems and potential solutions, future research can expand this body of knowledge by including larger samples.

As one of the aims of this research was to explain the experience and attitudes about their relationships with retailers of two essentially different organic food producer groups, we believe this research is relevant and timely. Given that snowball techniques were used in this study (Patton, 1987), and data on retailers with which organic food producers cooperate were obtained, in the next research phase, we suggest including the same organic food producers as well as retailers (Hingley and Lindgreen, 2006), in order to gain insight into attitudes of the other side in this SC, where retailers can be grouped into specialized, small retail, and retail chains (large). Additionally, based on this preliminary research study, a quantitative approach could be used in future research on a larger sample of organic food producers, using structural equation modelling or some other quantitative analysis technique. In future research, this conceptual idea and model should be applied to both organic food producers and retailers.

4.7. Conclusion

Due to the differences in product characteristics (i.e., fresh or processed food), there are different relationship structures (e.g., farmer–processor, farmer–retailer, processor–retailer, etc.) or forms of management in the AFSC that significantly affect the quality of collaboration and relationships. In the case of the relationship between farmers and retailers in the AFSC, both business relationships (e.g., prices, costs, and the market) and social relationships (e.g., local connections, trust, and friendship) are considered important to the overall success of the AFSC.

Collaboration is vital for the empowerment of small farmers, especially those in communities with low socio-economic status. As key stakeholders in the AFSC, farmers typically have limitations in market business skills, aspirations, and systematic thinking; thus, they often focus heavily on their business rather than creating an integrated system of collaboration with retailers. Conflicts and misunderstandings can be minimized by understanding and managing the essential factors of quality collaboration in the partnership of farmers and retailers. Close collaboration can help reduce business uncertainty and risk and achieve better performance for each stakeholder individually and throughout the chain. To achieve this, it is necessary to achieve certain prerequisites for quality collaboration between farmers and retailers, such as quality, frequent and open communication, sharing information on business performance, knowledge and risk sharing, high quality relationships that include reliability, honesty, good faith, mutual respect, and the inevitable mutual trust and joint efforts to improve relations and long-term collaboration.

This empirical qualitative study was conducted on a sample of organic food producers in Croatia from March to August 2021. The research results indicate that organic food producers mostly have short SCs, and the fact is there is no real SC (there are not enough requirements for monitoring traceability, sharing common risks, developing new products, joint investments or parts of resources, common plans and goals, etc.). With respect to the organic food producers, the second category of producers (smaller producers) do not depend on retailers because the share of sales through this channel is small for them (maximum 20%). There is high uncertainty of collaboration with large retail chains for both categories of organic food producers, while collaboration with small retailers is often informal and based on interpersonal trust. Quality relationships and collaboration also depend significantly on the quality of products offered by organic food producers. Specialized retailers set higher quality requirements, while small ones do not. Among organic food producers and retailers, mostly only market information (legislation and market requirements) is shared. The retailer is not interested in information

about organic production and the problems of organic producers; thus, they are poorly acquainted with the operational activities of organic food producers. Dependence on retailers is conditioned by the amount of production and the type of product (fresh or processed). The retailer has more, but not full, bargaining power, especially when it comes to organic producers of processed products. The quality of collaboration and trust is higher in the first category of organic food producers, and in the second category in the situation where personal relationships develop, i.e., interpersonal collaboration with the retailer. The perception of the impact of collaboration and trust on overall performance is completely different in the first and second category of producers. All organic producers recognize the same problems in the market of organic products and give similar recommendations for the development of the organic food market.

This study is an original empirical contribution to the organic food SC literature with an emphasis on RQ. Our empirical study provides deeper insights into the perceptions of small and medium organic food producers about the factors of collaboration and trust, and their impact on producer and chain performance as a whole. This paper contributes to an identified gap in the literature by presenting new insights into asymmetric producer–retailer relations from a perspective that has not previously been adequately researched in organic food SC management studies. At the same time, this is the first study that examines the relationship between producers and retailers of organic food in Croatia, to which not enough attention was so far dedicated, despite their potential importance for further development of the organic food market.

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Chapter 5

Paper No 4 (paper prepared for publication)

"Assessing the Influence of Collaboration and Trust on the Organic Agri-Food Supply Chain Performance: Empirical Insights from Producers and Retailers"

5. ASSESSING THE INFLUENCE OF COLLABORATION AND TRUST ON THE ORGANIC AGRI-FOOD SUPPLY CHAIN PERFORMANCE: EMPIRICAL INSIGHTS FROM PRODUCERS AND RETAILERS

Abstract

Purpose - This is the first study in Croatia, and even more broadly, on the impact of collaboration and trust on the success of organic agri-food supply chains. Given that an extensive review of the literature has shown that there is a limited number of empirical studies on the relationships between actors in food supply chains, especially organic ones, and the relationships between small organic agri-food producers and retailers, this research fills the mentioned research gap and makes a significant contribution to the literature in the field of organic agri-food supply chain management, both from a theoretical and practical perspective. The conducted research contributes to the still underdeveloped discussion on the impact of collaboration and trust on the performance of food supply chains.

Design/methodology/approach - The paper builds on empirical evidence gathered through a self-administered surveys conducted in Croatia, on the sample of 81 organic agri-food producer and 22 retailers who hold organic food products in their assortment. The identified relationships in the conceptual model are tested using partial least squares structural equation modelling.

Findings - The results of the research conducted on a sample of organic agri-food producers confirm that there is a significant positive influence of interorganizational collaboration, long-term orientation, and transparency on trust in the organic agri-food supply chain. However, two out of the five constructs of collaboration, namely improved communication and information exchange from the perspective of organic agri-food producers, do not significantly affect trust in the OAFSC. Furthermore, from the perspective of OAF producers, it is confirmed that trust is an important factor contributing to the OAFSC performance. Trust has a significant impact on improving business processes, the ability to respond quickly to customer needs, cost reduction, gaining competitive advantages, achieving mutual benefits, and overall efficiency of the organic agri-food supply chain. Trust has the most significant impact on business processes. The results of the research conducted on a sample of retailers have shown that there is a positive and significant influence of collaboration on trust, and consequently, there is a positive and statistically significant influence of trust on organic agri-food supply chain performance. Retailers are more likely to believe that their business with

suppliers is not risky, that communication with suppliers is of high quality, open and honest, that they frequently exchange information about business, and are well-informed about the business policies of suppliers. They are also more oriented towards long-term business and consider all conditions related to supplier contracts as clear and transparent. As a result, they are more likely to view their suppliers as honest partners they trust. For retailers with higher trust in their suppliers, operational efficiency improves, order speed increases, complaint resolution is faster, customer satisfaction rises, various costs decrease, competitive advantages are enhanced, profit and cash flow increase, business risk decreases, and overall business stability and environmental performance improve. In simpler terms, retailers with a higher level of trust in their suppliers have more successful operations within the organic agri-food supply chain in all performance indicators.

Research limitations/implications - The study extends the application of relationship quality model (CTP) to organic agri-food supply chain management and therefore, broadens its scope. However, the data collected are based on one country and thus, should be extended to assess the impact of collaboration, trust and performance in the organic agri-food supply chains in other markets.

Originality/value - This study, to the best of our knowledge, is the first empirical analysis on the relationship between collaboration, trust and performance in the context of organic agri-food supply chain, from perspective of organic agri-food producers and retailers. This research contributes to the field of examining collaboration and trust in asymmetric business dyads by including and comparing the perceptions of both sides in the relationship. These findings also offer significant practical implications. From a practical perspective, the conceptual model provides evidence that confirms the positive impact of certain collaboration factors on the development of trust between producers and retailers in organic agri-food supply chains, and subsequently, the influence of trust on performance indicators in organic agri-food supply chain. The research results provide supply chain actors with evidence of the real benefits of investing efforts in the development of collaboration and trust factors and vertical integration, both in terms of achieving operational excellence and improving the economic performance of each chain member and the entire food supply chain.

Keywords - Collaboration, Trust, Performance, Organic agri-food producer, Retailer, Organic agri-food supply chain, Survey.

Paper type - Research paper

5.1. Introduction

In the last decade, both globally and in Croatia, there has been an increased interest in organic agricultural production, which is the result of several factors. The most important of these factors are (Rodale, 2011): a large area of uncultivated land suitable for organic production, low pollution of the ecological system, increased consumer concern for health, and the growing importance of renewable resources in the global environment. Increased demand for organic food products, whose production is not harmful to the environment, is also one of the reasons for the expansion of organic farming. However, these reasons are just the starting point for the quality development of organic agriculture.

The most significant factor in the development of organic agriculture is considered to be the market where agricultural enterprises, as elementary units in the organic food product market, encounter a series of issues such as legal regulations, education about organic farming methods and food production, higher costs, and limited distribution channels (Renko and Bošnjak, 2009; Gajdić *et al.*, 2018). With the development of organic production, the market for organic food products also grows, as consumers increasingly care about their diet, health, and environmental impact (Gil *et al.*, 2000; Sondhi andVani, 2007). In the early stages of organic farming development, ecological awareness was the main motivation for the production and consumption of organic food products.

Most studies and research on organic production have focused on issues related to the state and prospects of organic production and the organic food market, barriers, and profitability of engaging in organic production (Petljak, 2011; Dovleac, 2016; Barjaktarović *et al.*, 2016; Koreleska, 2017; Gugić *et al.*, 2017); the size of the economy and the quantity produced (Bandara *et al.*, 2017), and the reasons or motivations for engaging in organic agriculture (Kubala *et al.*, 2008; Cranfield *et al.*, 2010; Vlahović *et al.*, 2015; Gajdić *et al.*, 2018).

The distribution of organic food products, along with consumer awareness, is a key factor for the growth of the organic agricultural-food product market and often represents a significant deficiency (Gajdić *et al.*, 2018). In developed countries, organic food products are mostly sold through traditional distribution channels (Wier and Calverley, 2002), and most organic food products can be purchased in supermarket chains (Denver and Christensen, 2007; Sanders *et al.*, 2016; Willer and Lernoud, 2016). In Croatia, most organic food products are still sold through direct channels, with only a small percentage of domestic producers distributing their products through retail (Petljak, 2013; Gajdić *et al.*, 2018). One of the main limitations for

further development of the organic food market in Croatia is the low ability of farmers to independently engage in the market and their weak collaboration with retailers. Furthermore, the literature also highlights the ineffectiveness of the supply chain of organic food products as one of the main problems (Canavari *et al.*, 2007). Additionally, the European Commission has introduced a comprehensive organic action plan for the EU, with one of its goals being to achieve the European Green Deal target of having 25% of agricultural land under organic farming by 2030. This further justifies the need for more research focus on organic food supply chains (EC Europa, 2021).

Despite the growing interest in the organic food market, an extensive literature review conducted for the purpose of this empirical research (Gjadić *et al.*, 2022) has indicated a lack of studies focusing on the collaboration between stakeholders in organic food distribution channels (especially the producer-retailer relationship). Therefore, the subject of this research is the supply chains of organic agricultural-food products, specifically how collaboration and trust among organic agricultural-food product producers and retailers affect the success of individual entities and the overall success of the organic agricultural-food product supply chain.

Given the aforementioned gaps in the literature, we believe that the interconnection and interdependence of collaboration (C), trust (T), and performance (P) in the organic agri-food producer-retailer relationship is still insufficiently researched, so the aim of this research was to address these gaps by conducting empirical research. The data presented in this paper were collected in Croatia, a country that has undergone rapid changes in the food market, particularly in the organic food market, over the past decade. Specifically, in this study, our aim was to analyze the perception of OAF producers and retailers regarding their mutual relationship, especially the influence of various factors of collaboration and trust on their individual success and the success of organic food supply chain as a whole.

The remainder of this paper is organized as follows: In Section 2, the conceptualisation of the collaboration, trust and performance in OAFSC is explained. This allows us to design a structural model and to formulate research hypotheses in Section 3. Next, we describe the scales used to measure each construct of the structural model. In Section 4, we present details concerning the data collected in the survey and the method of partial least squares structural equation modelling to test the proposed model. Section 5 is reserved to relating the results regarding the model to the current knowledge in the field, from the perspective of the OAF producer and retailer. Section 6 concludes with emphases on the main theoretical and managerial contributions as well as the limitations of the research and future research proposals.

5.2. Conceptualizing collaboration, trust and performance in organic agri-food supply chain management

The connection and interdependence of collaboration (C), trust (T) and performance (P) in a relationship is still an under researched area with a focus perception of primary agri-food producer (PAFP) in relation to its downstream partners in the chain and vice versa.

The interest in collaboration–trust–performance (CTP) as a necessary prerequisites of AFSCM has become increasingly important in the last 20 years with both practitioners and academics, as well as both in developed and in developing countries (Gajdić *et al.*, 2022). However, an extensive literature review conducted for the purposes of this empirical research indicates that there is still a limited number of studies focusing on CTP in the Agricultural-Food Supply Chain (AFSC). Furthermore, there are even fewer studies that explore the relationships between stakeholders in the organic agri-food supply chain (OAFSC).

Due to the specific nature of Agricultural-Food Supply Chains (AFSCs) and significant differences compared to non-FSCs, collaboration and 'trust' are crucial for facilitating the smoother flow of products and information. They also play a key role in enhancing the competitiveness and performance of individual chain actors and entire SCs. This ensures improved methods of communication and shared solutions for growing issues related to food quality and safety, as well as other less conspicuous attributes of food products (Sufiyan *et al.*, 2019).

Trust and satisfaction in AFSC are often highlighted as essential determinants of successful collaboration (Batt, 2003a; Schulze-Ehlers *et al.*, 2006; Aji, 2016). As the satisfaction of farmers increases, so does trust, which leads to a long-term commitment to the relationship (Aji, 2016).

According to Fischer *et al.* (2006), in the agricultural sector trust is more important for SMEs, which are characterized by the existence of personal relationships between business partners. Research by Reynolds *et al.* (2009) showed that trust is the most important sustainability indicator in young relationships while it is a collaboration history in the mature ones. Growth of trust largely depends on positive experiences of cooperation, which should develop over time. However, if a country's general economic situation is difficult, or if economic power is unevenly distributed (which is often the case in AFSCs where retailers dominate most of the chain) trust in more powerful partners may be undermined or limited.

Our CTP model consists of "collaboration", "trust", and "performance," as well as their interconnections. Trust is one of the prerequisites for collaboration that develops through collaboration. Being the central component and a prerequisite for collaboration, it also reciprocally thrives through collaboration, especially long-term collaboration. Willingness to collaborate affects trust and vice versa (Amentae *et al.,* 2018). Trust is a key factor for the development of long-term collaboration, and it has the effect of strengthening trust between partners. Thereby the impact of collaboration and trust on the performance is significant.

Based on the Systematic Literature Review (SLR) by Gajdić *et al.* (2022), we understand the design and management of the Agricultural-Food Supply Chain (AFSC) according to Tsolakis *et al.* (2014) as a strategically multidimensional design task. In this context, collaboration sometimes becomes more of a necessity than an option, as both collaboration and trust can significantly impact the effectiveness of the AFSC (see Figure 1). Trust is a critical determinant of a good buyer-seller relationship (Batt and Rexha, 2000). This leads to a general understanding of the CTP model within the context of the AFSC, where trust is a central component of the AFSC because it influences collaboration and vice versa. The willingness to collaborate affects the development of trust, and without trust, collaboration cannot be established among partners in the supply chain. Therefore, trust is considered a mediator for improving supply chain performance (see Figure 5.1.) (Gajdić *et al.*, 2022).

Figure 5.1. Collaboration-trust-performance (CTP) model

Explaining the concept of the 'collaboration ladder,' where supply chain performance gradually improves through collaboration, Kampstra *et al.* (2006) suggest that the initial level of collaboration is 'communication' assuming no prior collaboration, and trust cannot yet be present at this stage. The level of trust that a farmer invests in their customers develops and grows over time, largely based on positive past experiences. For farmers, trust is a crucial foundation for building a relationship (Vlachos and Bourlakis, 2006). Trust arises after positive personal experiences and requires prior engagement (Luhmann, 2000). This means that trust between partners in the chain does not occur automatically (Batt and Rexha, 2000). Decision-makers on both sides must first be convinced of the other partner's capability, reliability, and integrity (Ganesan, 1994). Even when repeat business is expected, in the context of a

meaningful long-term relationship, customers and sellers must learn to trust each other to fulfil their obligations (Hakansson *et al.*, 1977; Hallén *et al.*, 1991; Morgan and Hunt, 1994).

All of this means that positive experiences with a partner in the channel build trust (Batt and Rexha, 2000). Trust in a business partner is influenced by positive prior collaboration and effective communication. However, Fischer (2013) highlights that the existence of personal relationships is also crucial when it comes to developing trust among actors in the AFSC. A study by Mutonyi *et al.* (2016) shows that trust between producers and buyers is a strong mediator between price satisfaction and producer loyalty, supporting other studies on trust and its mediating role. Trust is developed through a long-term orientation, meaning that partnerships among SC actors are designed to be long-lasting, and SC actors work together to reduce uncertainty and create a competitive advantage among SC actors (Chen *et al.*, 2004; Lees and Nuthall, 2015). Trust promotes long-term relationships (Ganesan, 1994), reduces opportunistic behavior (Morgan and Hunt, 1994), and enhances the competitiveness and performance of the SC. Collaboration and trust can significantly impact the effectiveness of the AFSC, with the latter being a critical determinant of a good buyer-seller relationship (Batt and Rexha, 2000). In light of the above, we can conclude that trust is a central component of the AFSCM and an important mediator between collaboration and the success of the AFSCM. Accordingly, in our research, we focus on CTP as the most important (central) variable in AFSC while considering others as prerequisites or enablers of CTP.

5.3. Research model and hypotheses development

For the purpose of identifying different research interest according to the CTP focus, we analysed the papers and their conceptualisations, and categorised them according to the discussed context. The research conducted by Gajdić *et al.* in 2022 conceptualizes the considered CTP constructs and their relationship. This conceptualization served as the basis for conducting this empirical study on the impact of collaboration and trust on the success of supply chains for organic agricultural and food products.

Previous research, such as Gajdić *et al.* 2021 and Gajdić *et al.*, 2022, has identified a range of key factors or prerequisites for collaboration in OAFSC. These factors are of great importance for understanding and improving the success of agri-food supply chains and are often explored within the concepts of collaboration and trust. Here's a summary of these key factors:

(1) *Interorganizational collaboration* - this category pertains to the level of collaboration among different organizations in the supply chain. Effective collaboration among these organizations can significantly contribute to the success of the chain.

(2) *Effective communication* - communication between partners in the supply chain is crucial for the exchange of information, coordination of activities, and problem-solving.

(3) *Mutual information exchange* - supply chain partners need to exchange relevant information to better understand market needs and requirements and make informed decisions.

(4) *Resource sharing* - this includes physical resources like infrastructure, financial resources, human resources, and organizational resources. Sharing these resources can help improve efficiency and competitive advantages within the supply chain.

(5) *Transparency among partners* - supply chain partners should be transparent in their activities and business decisions to build trust among themselves.

(6) *Willingness to share risks* - in supply chains, there are various risks, including market risks and production-related risks. Partners who are willing to share these risks can better manage challenges together.

(7) *Commitment* - this category relates to the commitment of supply chain partners to achieving common goals and building long-term relationships.

(8) *Long-term orientation* - supply chain partners should have a long-term perspective and develop relationships that will endure over time, which can help reduce uncertainty and improve chain performance.

(9) *Trust* - trust is a key component in the supply chain as it affects collaboration and performance measurements. Trust is developed through positive experiences and effective communication among partners.

These factors together shape the dynamics of collaboration and trust in agri-food supply chains and have an impact on the chain's success. Further research can clarify their roles and relationships within this context.

Based on the aforementioned discussions, we have established a research model and hypotheses. As previously mentioned, various indicators or prerequisites for quality collaboration influence trust as a central variable. This ultimately reflects on the success of organic food producer and the individual retailer, as well as the entire OAFSC. To examine the points discussed earlier, we have formulated two primary hypotheses (H1 and H2), which will

be analyzed through 11 working hypotheses. Figure 5.2. illustrates the research framework and research hypotheses.

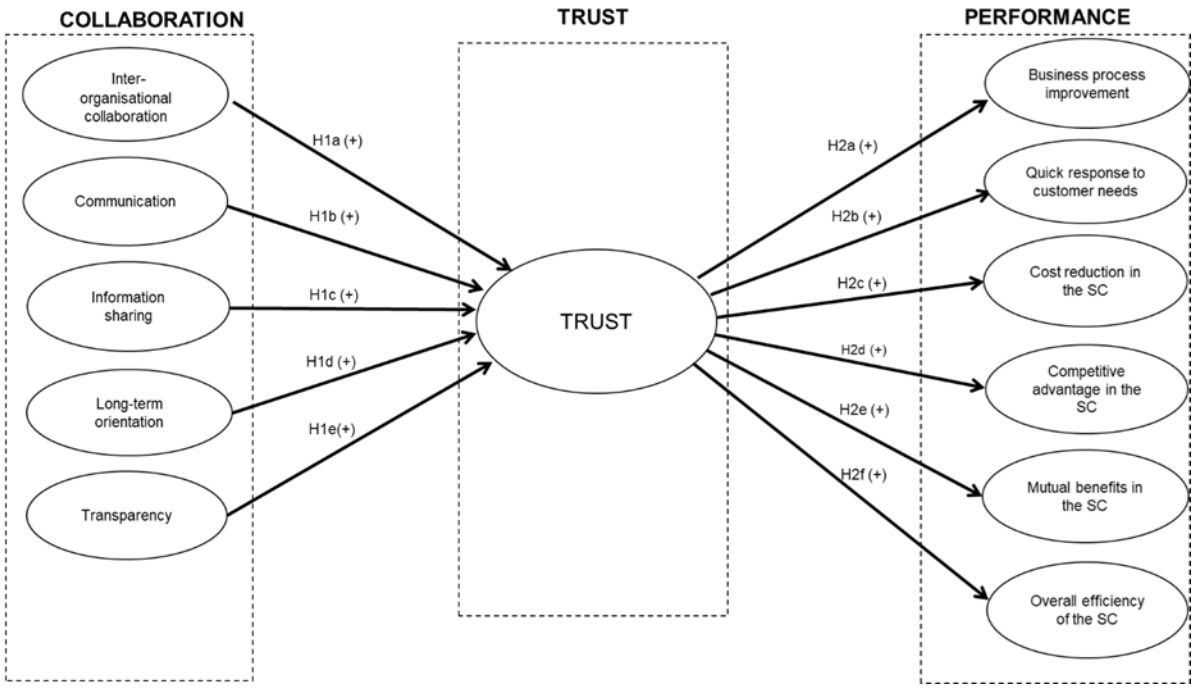

Figure 5.2. Research model

These factors are discussed individually in the following subsections, with a particular emphasis on existing literature that connects these factors and their mutual interaction with the overall performance of the OAFSC. For hypothesis development, a detailed literature review was conducted, and the literature sources were used to develop metrics for CTP items (**Appendix D, Table 1.**). This paper tests the effects of these individual drivers of collaboration and trust on the OAFSC performance, using examples of collaboration between OAF producers and retailers in Croatia.

In line with the research objectives, the hypothesis, *"Collaboration and trust influence the performance of organic agri-food supply chains"*, will be supported by several research hypotheses that are tested through empirical research.

5.3.1. The impact of collaboration on trust

According to some authors, trust is one of the prerequisites for collaboration (Matopoulos *et al.*, 2007; Schulze-Ehlers *et al.*, 2014; Msaddak *et al.*, 2021), and it simultaneously develops through high-quality collaboration. This means that as collaboration

develops, trust also develops (Fisher 2013; Amentae *et al.*, 2018; Gajdić *et al.*, 2021). Trust arises after positive personal experiences and requires prior engagement (Luhmann, 2000). The level of trust that a farmer invests in their customers develops and grows over time and is largely based on positive past experiences (Batt and Rexha, 2000) and the fulfilment of the prerequisites for quality collaboration in the AFSC, as previously mentioned (Gajdić *et al.*, 2021). Therefore, we propose the first hypothesis that will be supported by sub-hypotheses as the following:

H1: Collaboration positively influences trust between organic agri-food supply chain actors.

5.3.1.1. The role of inter-organisational collaboration on trust

One of the objectives of every SC is that companies are not seen individually but as members of a competitive network that involves multiple companies in value creation. This objective can only be achieved through the collaboration of all actors in the SC, which requires the integration of all individual network members to maximize the benefits for SC actors (Kache and Seuring, 2014). There are various ways to improve collaboration within OAFSC, as it progresses in both interpersonal and organizational relationships (Boniface 2012; Boniface *et al.*, 2010). Reynolds *et al.* (2009) believe that quality relationships develop when both sides develop common goals, shared activities, and communicate frequently. Therefore, managing collaboration factors is often seen as one of the possible ways to intensify collaboration between suppliers and retailers (Vlachos and Bourlakis, 2006; Hingley *et al.*, 2008; Zhang *et al.*, 2012; Maglaras *et al.*, 2015; Mesić *et al.*, 2018). According to Fischer *et al.* (2006), in the agricultural sector, trust is more important for small and medium-sized enterprises characterized by the existence of personal relationships between business partners. Reynolds *et al.'s* research (2009) has shown that trust is the most important indicator of sustainability in young relationships, while in mature relationships, it is the prerequisite of collaboration. Building trust is crucial for small farmers, and the growth of trust largely depends on positive collaboration experiences, which should develop over time. Therefore, we hypothesize as follows:

H1a: Inter-organizational collaboration positively influences trust between organic agri-food supply chain actors.

5.3.1.2. The role of quality communication on trust

As one of the common prerequisites for trust, authors also emphasize communication among actors in the chain (Kottila *et al.*, 2008; Puspitawati, 2011). Effective, frequent, and open communication is one of the prerequisites for quality collaboration (Chen *et al.*, 2004; Wilding and Humphries, 2006; Schulze *et al.*, 2006; Reynolds *et al.*, 2009; Bezuidenhout *et al.*, 2012), which can significantly impact trust among OAFSC partners. Wilding and Humphries (2006) noted that the success of SC relationships depends on creating a relationship where everyone benefits and where each party is enthusiastic about engaging in open communication and information exchange. Through continuous and honest communication, supply chain problems can be avoided, and solutions can be more easily found, greatly simplifying and improving collaboration among SC actors and strengthening trust among partners. Schulze-Ehlers *et al.* (2006) and Fritz and Fischer (2007) agree that the most important determinants of trust in AFSCs are the quality of communication achieved through the frequency of communication and the quality of information, along with experience in collaboration. Therefore, we hypothesize as follows:

H1b: Improved communication positively influences trust between organic agri-food supply chain actors.

5.3.1.3. The role of information sharing on trust

Collaboration and trust in the supply chain can be enhanced by sharing information, resources, knowledge, and risks. Mentzer *et al.* (2001) defined supply chain collaboration (SCC) as the way companies involved in the supply chain act responsibly to achieve common goals by sharing knowledge, information, profits, and risks. Different literature highlights various antecedents of trust within OAFSCs, among which information exchange plays a significant role (Batt, 2003; Fritz and Fischer, 2007; Kottila, 2009; Zhang and Hu, 2011; Boniface, 2012; Sun *et al.*, 2018). Information quality encompasses several aspects, including accuracy, timeliness, appropriateness, and reliability of information (Li and Lin 2006). Batt (2003) identifies perceived honesty and credibility of information. Hamzaoui-Essoussi *et al.* (2013) state that in complex food markets, 'trust' is an important element that can facilitate decision-making, citing Green *et al.* (2005), who linked 'trust' with food safety achievable through reliable and timely information.

According to Sun *et al.* (2018), retailers are usually in a dominant position in OAFSCs, and when they emphasize information sharing, suppliers will perceive it as fair. According to

research by Gajdić *et al.* (2021), quality communication between organic agri-food producers and retailers can only be achieved if relevant information, knowledge, resources, and risks are shared, especially from the perspective of small farmers who are in a less favourable position compared to retailers.

However, some previous research points to a lack of trust among stakeholders in organic SCs, for example, due to problematic information flow within the SC, a lack of trust caused by a lack of quality communication, which particularly affects the personal and process dimensions of trust (Anastasiadis *et al.*, 2015). It is essential that information exchange is used to improve collaborative activities with SC partners, and quality information shared on time will result in trust among them (Baihaqi and Sohal, 2013). Therefore, we hypothesize as follows:

H1c: Information sharing positively influences trust between organic agri-food supply chain actors.

5.3.1.4. The role of long-term orientation on trust

Long-term, sustainable partnerships require a long-term orientation and a high level of collaboration among all parties within the SC. They are characterized by a high level of trust, commitment, transparency, and integrity. Trust is built through a long-term orientation, meaning that partnerships within the SC are conceptualized as enduring, and its actors collaborate to reduce uncertainty and create competitive advantages in the chain (Chen *et al.*, 2004; Lees and Nuthall, 2015). Trust is a prerequisite for long-term cooperation (Ganesan, 1994), but it also mutually advances through collaboration, particularly long-term collaboration. Trust emerges after positive personal experiences and requires prior engagement (Luhmann, 2000). A positive experience with a partner in the channel fosters trust, implying that trust between chain partners does not occur automatically (Batt and Rexha, 2000). Decision-makers on both sides must first assure themselves of the capability, reliability, and integrity of the other partner. As satisfaction grows, there are always expectations of relationship continuity and a willingness on both sides to remain in longer-term relationships (Ganesan, 1994; Patterson *et al.*, 1997). Satisfaction with past outcomes indicates fairness in the exchange relationship. The level of trust that a farmer invests in their customers develops and grows over time and is heavily based on positive prior experiences. As farmer satisfaction increases, so does trust, leading to long-term commitment to the relationship (Aji, 2016). Therefore, we hypothesize as follows:

H1d: Long-term orientation positively influences trust between organic agri-food supply chain actors.

5.3.1.5. The role of transparency on trust

Transparency is closely related to the exchange of information between SC partners and enhances communication and information sharing within the SC, which can lead to improved collaboration and increased trust between partners (Puspitawati *et al.*, 2011). Transparency is especially important in determining prices (Puspitawati *et al.*, 2011; Mutonyi *et al.*, 2016), which can significantly impact trust between partners and supplier loyalty. According to Puspitawati *et al.* (2013), potato growers have more trust in their customers when they believe they are paid fairly and reasonably, confirming that transparency has a positive effect on trust in fairness. The study by Mutonyi *et al.* (2016) identified three of the five dimensions of price satisfaction that significantly influence a producer's perception of trust in their customers: price fairness, price reliability, and relative price. On the other hand, price transparency and the price-quality ratio did not significantly affect the trust of producers in their customers. However, research conducted by Gajdić *et al.* (2021) indicated that in the OAFSC, the following prerequisites for developing quality collaboration and trust between producers and retailers are not fully met: information credibility, promise reliability, alignment of goals and investments, price transparency, price satisfaction, and personal trust. Therefore, we believe that transparency between partners is one of the essential factors in building trust, and we hypothesize as follows:

H1e: Transparency positively influences trust between organic agri-food supply chain actors.

5.3.2. The impact of trust on performance

According to the previously described CTP model, trust is considered a mediator for improving SC performance. Since "collaboration" and "trust" can facilitate the efficiency of OAFSC, it is crucial to enhance the performance not only of individual actors in the SC but also of all actors as a whole. SC success refers to the overall success of the chain, which depends on the achievements recorded in each stage of the SC (Aramyan, 2007). Trust is an important strategic condition and one of the main factors that can enhance or limit (in the case of distrust) successful collaboration in AOFSC (Gajdić *et al.*, 2021). In the agricultural sector, trust is more

critical for small and medium-sized enterprises (SMEs), characterized by the existence of personal relationships among business partners (Fischer *et al*., 2007; Lu *et al.*, 2012).

Through a systematic literature review (SLR) study (Gajdić *et al.*, 2022), a certain number of papers were identified that measured and confirmed the impact of trust on financial and non-financial (Masuku *et al.*, 2003; Masuku and Kirsten, 2004; Lu *et al.*, 2008; Gorton *et al*., 2015; Odongo *et al*., 2016; Bandara *et al.*, 2017; Uddin, 2017; Susanty *et al.*, 2017; Mesić *et al.*, 2018) performance of OAFSCs. In some papers, the impact of trust on performance is investigated with an emphasis on trust's impact on the sustainability of the SC and specific agri-food performance (Jie *et al.*, 2013; Gagalyuk *et al.*, 2013; Ding *et al.*, 2014; van der Werff *et al*., 2018). For this reason, we propose another hypothesis that will be supported by sub-hypotheses in the following:

H2: Trust positively influences performance between organic agri-food supply chain actors.

5.3.2.1. The role of trust on business process improvement

OAFSC is considered effective if its activities, operations, and processes reduce overproduction, eliminate unnecessary stocks, minimize operational inventory, streamline SC movement, eliminate bottlenecks or detours to reduce waiting times, and reduce to eliminate waste and non-compliant items (Dinu, 2016). In line with previous research and preliminary research on the impact of collaboration and trust on the performance of OAFSC (Gajdić *et al.*, 2021), it has been found that the influence of trust on AFSC performance is observed through the improvement of business processes (Batt 2003; Chen *et al.*, 2004; Molnár *et al.*, 2010; Odongo *et al.*, 2016; Bandara *et al.*, 2017; Moazzam *et al.*, 2018).

This implies that trust has an impact on operational efficiency, inventory and process optimization, reliability and speed of delivery, production and demand planning, delivery quantity flexibility, delivery deadlines, and more. Therefore, we hypothesize as follows:

H2a: Trust between supply chain actors positively influences business process improvement in the organic agri-food supply chain.

5.3.2.2. The role of trust on responsiveness

One of the important non-financial indicators of success in OAFSC that can be considered an integral part of the SC is responsiveness (Batt 2003; Aramyan *et al.*, 2006; Bourlakis *et al.*, 2012; Jie *et al.*, 2013; Odongo *et al.*, 2016). Responsiveness is defined as the

ability to respond and effectively adapt a company to the market based on an understanding of real market signals, in line with changes in end-user requirements. Responsiveness is reflected not only in the SC's response to changing customer needs and demands but also in response to changes in the competitive environment and conditions, which can be measured by indicators such as customer complaints, which are also a good indicator of customer satisfaction (Odongo *et al.*, 2016), or faster resolution of consumer complaints, reliability, and delivery times (Gunasekaran *et al.*, 2001), and so on. Short processing times and related reduced response times increase customer satisfaction and can lead to competitive advantages (Odongo *et al.*, 2016). Therefore, we hypothesize as follows:

H2b: Trust between supply chain actors positively influences the ability to quickly respond to customer needs in the organic agri-food supply chain.

5.3.2.3. The role of trust on supply chain cost reduction

According to Schulze-Ehlers *et al.* (2006), commitment and trust between exchange partners influence economic outcomes, which is reflected in cost reduction (e.g., total business costs, logistics, inventory holding, product returns, transportation, etc.). Clarke (2006) observed a positive relationship between the commitment of SC actors to long-term relationships and performance because commitment reduces the time and costs associated with repeated disputes, holding, and renegotiations.

According to the Commitment-Trust Theory of Relationship Marketing, two fundamental factors, trust and commitment, must coexist for a relationship to be successful. This means that they do not exclude each other. In the study by Mesić *et al.* (2018), a statistically significant positive relationship between commitment and SCP (Supply Chain Performance) was found in traditional food chains, leading to a reduction in logistic costs. Gyau and Spiller (2007a) investigated trust between fresh fruit and vegetable exporters and importers and the impact of different trust factors on their transaction costs. The study by Bandara *et al.* (2017) focused on trust, commitment, and satisfaction as key elements of RQ (Relationship Quality) and examined their impact on cost reduction. In accordance with this, we hypothesize as follows:

H2c: Trust between supply chain actors positively influences cost reduction in the organic agri-food supply chain.

5.3.2.4. The role of trust on supply chain competitiveness

SCM is an essential foundation for sustainable competitive advantage (Chen *et al.*, 2004). Sustainable competitive advantage is created through long-term relationships between customers and suppliers (Ganesan, 1994). The SC itself determines whether it will generate a (sustainable) competitive advantage and thus differentiate itself from its competitors (Lees and Nuthall, 2015). By promoting open, two-way communication, building trust and collaboration, and adopting a long-term orientation with suppliers, it is possible to significantly influence the creation of a lasting competitive advantage. Trust among business partners is an important factor in building competitive advantages that can arise through collaboration and long-term relationships (Suvanto, 2012). The lack of trust between buyers and small to medium-sized suppliers can lead to inefficiencies in food SCs and their failure to adapt to market changes, resulting in a loss of international competitiveness (Schulze-Ehlers *et al.*, 2006). The results of the study by Jie *et al.* (2013) also show that trust, strategic partnerships with suppliers, and customer relationships are considered determinants of competitive advantage for Australian beef processors. The analysis revealed that management actions to improve the quality of information and trust would lead to improved food quality and responsiveness, and these improvements, in turn, would lead to a competitive advantage.

These studies provide empirical support for our next hypothesis:

H2d: Trust between supply chain actors positively influences achievement of competitive advantages in the organic agri-food supply chain.

5.3.2.5. The role of trust on mutual benefits

Mutual benefit arises from successful partnerships. It has already been confirmed that successful partnerships and collaborations cannot exist without trust. Collaboration in the SC can be enhanced through the exchange of information, resources, and risks. Here, trust plays a crucial role because it's not only important that these factors are shared with each other but also the financial component that arises through collaboration and its distribution depends on trust (Kache and Seuring 2014). On the one hand, customers and suppliers can be satisfied and strongly interconnected, and on the other hand, both the customer and the supplier can increase their profit and remain more competitive, which is beneficial for both sides in the SC (Hartmann *et al.*, 2015). Some indicators of mutual benefit can include achieving higher revenue and profits (Gellynck *et al.* 2011; Odongo *et al.* 2016), improved communication between buyers and retailers, risk reduction for both parties (Gellynck *et al.*, 2011; Mesić *et al.*, 2018), inventory

reduction/optimization (Chen *et al.*, 2004; Bandara *et al.*, 2017), the introduction and/or improvement of online retailing (Hartman *et al.*, 2015), and more.

Therefore, we hypothesize as follows:

H2e: Trust between supply chain actors positively influences the achievement of mutual benefits in the organic agri-food supply chain.

5.3.2.6. The role of trust on overall efficiency of organic agri-food supply chain

To enhance the overall efficiency of the entire SC, continuous development and support among SC members are necessary (Burgess *et al.*, 2006). As a result, processes within the SC can be better coordinated and optimized. Improving processes can lead to attributes that can positively impact the overall success of the supply chain, such as improved financial performance (Gellynck *et al.*, 2011; Bandara *et al.*, 2017; Mutonyi *et al.*, 2016), business stability (*Chen et al.*, 2004; Odongo *et al.*, 2016), environmental performance of the SC, mutual reputation, SC visibility, and business flexibility within the SC (Batt 2003), increased product quality and safety within the SC (Jie *et al.*, 2013). Therefore, we hypothesize as follows:

H2f: Trust between supply chain actors positively influences the overall efficiency of the organic agri-food supply chain.

Our third hypothesis assumes that there are differences in the quality of collaboration and mutual trust between OAF producers and retailers, depending on the type of product (fresh or processed). In line with the research objective, the H3 hypothesis is formulated as follows:

H3: There are differences between the supply chains of organic agri-food products depending on the type of product that is distributed (fresh organic agri-food product or processed product).

OAFSCs were examined through the lens of inter-organizational collaboration (MS) and trust (TRUST) between OAF producers and retails, with each construct being assessed through a series of statements measured on a Likert scale (**Appendix D, Table 1.**).

5.4. Research design

5.4.1. Research setting and data collection

The empirical analysis aims to test the hypothesized relationships. The first step in the research design was to create a database of potential respondents. According to data from the

Register of Business Entities in Organic Agriculture published by the Ministry of Agriculture (2021), there were 6,024 business entities in Croatia holding an organic food certificate in 2021. However, there is no record of organic food producers who sell their products through retail channels. The lack of statistical and public data on the organic food market for individual products in EU countries and in Croatia, especially data on SCs, is one of the factors that makes this kind of research difficult. For many countries, especially in Central and Eastern Europe (CEE), retail sales data are not continuously collected (FIBiL, 2021). Therefore, little is known about the methods of selling organic products, how they function, and how successful individual organic product sales channels are.

The market situation was analysed through market observation, which is exploratory research technique, helping us build the database needed for this research. In exploratory research, retail stores were visited, including large retailers, specialized organic or healthy food stores, and retailers that also have organic products in their range, such as specialized stores (e.g., drugstores). Online searches were also used to identify the representation of organic food products at retailers' stores, and information was obtained through consumer surveys. During store visits, a list of Croatian organic food producers was compiled in each store, with employees and store owners assisting in creating this list. Store visits covered most of the retailers operating in the territory of the Republic of Croatia, according to the Agency for the Protection of Market Competition Report (2022). To obtain as precise data as possible and supplement the database, assistance was also sought from several organic food producers' associations and supervisory bodies in the Republic of Croatia. This process led to the creation of a database of 180 Croatian organic food producers and/or processors who, with their products (fresh or processed), form an integral part of the retailer's assortment. However, during field research, the number of potential respondents decreased, which also reduced the research base itself. This decrease occurred because some respondents left organic food production, and a certain number of respondents did not continue cooperation with retailers. The final base of potential respondents consisted of 165 Croatian OAF producers. Based on the market analysis, it was concluded that a surprisingly small number of organic food producers (out of the total number of certified ones) operate with retailers.

Gajdić *et al.* (2018) concluded in their research that distribution channels of organic food products in the Republic of Croatia are mainly associated with terms like "local market," "alternative market," "direct sales" and "short supply chains (SCs)" because most organic products in the Republic of Croatia are still sold through direct channels. Results of preliminary

research conducted on a sample of organic food producers (Gajdić *et al.*, 2021) also confirmed that the Croatian market belongs to the category of new markets and is still underdeveloped in terms of demand. Organic food is still mainly sold through direct distribution channels, although this can sometimes be influenced by the type of products (fresh or processed) and not only the stage of development of the organic food market (Orsini *et al.*, 2019).

Drawing on existing scales and new knowledge received from organic food producers and retailers, two questionnaires were developed based on secondary data analysis and pilot testing (Gajdić *et al.*, 2021): (1) *A survey questionnaire for organic agri-food producers* and (2) *A survey questionnaire for retailers*. The *Survey questionnaire for organic agri-food producers consisted* of the following parts: characteristics of the family farm, market and distribution of organic food products, and a third part of the questionnaire was dedicated to collaboration with retailers. The *Survey questionnaire for retailers* consisted of the following parts: retailer characteristics, market and suppliers of organic food products, and a third part of the questionnaire was dedicated to collaboration with organic food producers.

The research was conducted in the territory of the Republic of Croatia. The unit of analysis, i.e., the respondents, were owners of organic family farms, companies in the organic food business, and retailers (small, medium, and big-box, specialized, and FMCG retailers). The criterion for participation in the research was: a minimum of three (3) years of active business in the market. Before starting the survey, respondents were contacted by phone, or a face-to-face meeting was held to inform them about the purpose of the survey. Data confidentiality was guaranteed to the respondents. Surveys were mostly completed by organic food producers and retailers online through *Survey Monkey*, after the survey questionnaire was sent to them by email. Altogether, research results are based on a survey conducted on a sample of 81 organic food producers and 22 organic food retailers.

After conducting the field research, the research results were statistically analysed according to the conceptual model and defined hypothesis. Data collected through empirical research were processed using appropriate methods of descriptive and inferential statistics, including multivariate methods of data processing such as factor and cluster analysis and regression. Some of the research hypotheses were analysed using the structural equation modelling method, specifically the partial least squares (PLS-SEM) technique, which supports smaller research samples and is used in SCM research (Petljak *et al.*, 2018). The collected data were analyzed using MS Office Excel, the IBM SPSS program package 25.0, and the SmartPls program.

5.4.2. Measures and their consistency

The design of items for each construct in the study was carried out by adopting existing measurement scales from previous research and creating new statements as needed (**Appendix D Table 1.**). This initial step resulted in an initial list of statements for satisfaction with *interorganizational collaboration* (Batt, 2003; Schulze-Ehlers *et al.*, 2006; Gellynck *et al.* 2011; Zhang and Hu, 2011; Boniface 2012; Susanty *et al.*, 2017; Mesić *et al.*, 2018), *mutual information exchange* (Chen et.al., 2004.; Boniface *et al.*, 2010.; Gellynck *et al.*, 2011.; Zaheer and Trkman 2017.; Bandara *et al.*, 2017.; Amentae *et al.*, 2018.; Mesić *et al.*, 2018); *effective communication among partners* (Chen *et al.*, 2004; Schulze *et al.*, 2006; Kottila and Ronni, 2008; Fischer, 2013; Puspitawati *et al.*, 2013; Bandara *et al.*, 2017); *long-term orientation* (Boniface et.al., 2010; Boniface , 2012; Zhang and Hu, 2011; Lobo *et al.*, 2013; Aji, 2016; Bandara *et al.*, 2017; Lu *et al.*, 2012); and *transparency among partners* (Puspitawati *et al.*, 2011; Boniface, 2012; Mutonyi *et al.*, 2016). These key factors of collaboration quality affect trust between partners in OAFSC (Batt, 2003; Naspetti *et al.*, 2011; Boniface, 2012; Thorsøe *et al.*, 2015; Aji, 2016; Sun *et al.*, 2018; Gajdić *et al.*, 2021), and consequently, trust affects the performance of individual actors and the entire OAFSC.

To establish satisfactory validity for each construct, a stepwise modelling approach involved the exclusion of a small number of indicators from the initial model. Initially, convergent validity and construct reliability were assessed, followed by discriminant validity. Due to the potential issue of discriminant validity, an additional indicator, INF1, was excluded from the model due to a strong correlation between the constructs INF and TRANS, with indicator INF1 exhibiting the strongest correlation. By eliminating certain indicators, a satisfactory result was achieved for the external (measurement) model. The results are shown in **Appendix D Table 2.** All external loadings are statistically significant at a significance level of 1%.

Convergent validity was measured using the indicator of Average Variance Extracted (AVE). It is evident that for each construct, AVE exceeds 0.5, which is the threshold for acceptable validity. Specifically, values greater than 0.5 indicate that each construct explains more than 50% of the variance in its indicators. In addition, the reliability, i.e., internal consistency, of each construct was examined through two indicators. The first is the *Cronbach's alpha* coefficient, and the second is the indicator of Composite Reliability. *Cronbach's alpha* values are significantly higher than the threshold value of 0.7, indicating the presence of internal consistency. The Composite Reliability indicator is also very high for all constructs, surpassing

the threshold of 0.7, confirming the satisfactory reliability of the constructs in the model. In conclusion, it can be stated that all indicators effectively explain the constructs they measure.

5.5.Research results

5.5.1. Organic agri-food producers' characteristics

A majority of the organic food producers, specifically 47 of them, were registered in the Register of Entities in Organic Agriculture between 2010 and 2019. Additionally, 23 producers were registered between 2000 and 2009, demonstrating the continuity and long-term operation in the Croatian market. Respondents reported that their agricultural farm were primarily registered as commercial companies (32.1%), followed by family farms (29.6%) and family farms within the VAT system (24.7%). Other forms of family agricultural enterprise registration were less common.

The land area of agricultural farms of organic food producers also varied according to their size. Twenty-seven respondents had agricultural enterprises with a total area of 10 hectares or more, 21 had enterprises with an area between 1 and 3 hectares, 17 had enterprises with an area between 5.1 and 10 hectares, and 11 had enterprises with an area between 3.1 and 5 hectares. 68.42% of respondents stated that their type of agricultural enterprise was mixed, meaning that, in addition to agriculture, at least one member of the household was employed outside the enterprise.

Most of the respondents fell into the age group of 41 to 50 years (24 respondents), followed by the age group of 51 to 60 years (23 respondents), the age group of 31 to 40 years (19 respondents), and 10 respondents were 61 years or older. Additionally, 3 respondents were aged between 20 and 30 years. In the research, 59.30% of the participants were male, and 40.70% were female. The majority of respondents (53.10%) had completed higher education or obtained a college degree, 37.00% had completed secondary education, and 9.90% had either a master's or doctoral degree.

5.5.2. Results of the research conducted on the sample of OAF producers

Since the conceptual research model includes concepts that cannot be directly measured but are considered latent variables (constructs), data were analyzed through structural equation modelling using the Partial Least Squares (PLS-SEM) method. This method allows for the simultaneous estimation of all assumed relationships within the model. Unlike covariance-

based structural modelling (CB-SEM), PLS-SEM is more suitable for working with smaller samples.

Given that the sample of respondents consists of 81 OAF producers, this is considered a relatively small sample for evaluating a complex model with a total of 12 latent variables and 11 causal relationships. Latent variables were indirectly measured using statements in the survey questionnaire. The questionnaire items were framed as statements (**Appendix D Table 1.**), and respondents rated their level of agreement with each statement on a scale from 1 (strongly disagree) to 5 (strongly agree). Thus, the model includes ordinal variables as indicators of latent variables. The Mardia test for multivariate normality indicated that this assumption was not met ($z = -65.74$, $p < 0.001$). This result further supports the choice of the PLS-SEM method, which is sometimes considered a non-parametric approach to structural modelling (Hair *et al.*, 2019). The SmartPLS 4 software was used for data analysis.

To test the hypotheses, a PLS-SEM model was estimated. Collaboration elements were used as independent variables. These elements represent exogenous constructs in the model and include *interorganizational collaboration* (MS), *communication* (KOM), *information sharing* (INF), *long-term orientation* (DP), and *transparency* (TRANS). The variable *trust* (TRUST) constitutes an endogenous construct in the model and also serves as both a dependent and independent variable. The other endogenous constructs, exclusively serving as dependent variables, are: *business process improvement* (POSLP), *ability to respond quickly to customer needs* (ECR), *supply chain cost reduction* (TROŠ), *achieving competitive advantage* (KP), *achieving common benefits for supply chain actors* (ZK), and *overall supply chain efficiency* (UČINK).

In the second step, the discriminant validity of each construct was examined. This aimed to determine whether each construct is truly different from the others in the model. In the PLS-SEM method, the analysis of discriminant validity follows the guidelines provided by Henseler, Ringle, and Sarstedt (2015), introducing a measure known as the Heterotrait-Monotrait ratio (HTMT). This indicator shows the ratio between the correlations among indicators that measure different constructs and the correlations among indicators that measure the same construct. Accordingly, smaller values of this indicator are desirable. A common threshold in research is to use a value of 0.85 or 0.90 as an upper limit, depending on the level of conceptual similarity between constructs.

In this model, it is evident that in some cases, there are high correlations among indicators measuring different constructs (**Appendix D Table 3**.). In this context, it is

noticeable that the construct TRUST, representing trust, is similar to the constructs DP, MS, and TRANS. There is also a potential issue with the constructs TRANS and INF. To maintain the same number of constructs in the model, as well as most of the indicators, the HTMT was further tested to determine if it significantly differs from 1 using bootstrapping. Confidence intervals at the 95% level were estimated for each HTMT to assess its significance.

In **Appendix D Table 4**., confidence intervals for HTMT (Heterotrait-Monotrait) between all pairs of constructs are displayed. Despite some higher indicator values, none of the confidence intervals contain the value 1. Therefore, it can be concluded that the issue of discriminant validity does not exist in the model.

Table 5.1. and figure 5.3. show the results of the internal (structural) model, which demonstrates the interdependence of constructs and pertains to hypothesis testing.

Table 5.1. Results of the structural model for OAF producers

Assumed relationship	Structural coefficient	t	p
DP → TRUST	0.222	2.502	0.012
INF → TRUST	0.085	0.870	0.384
KOM → TRUST	0.095	1.210	0.226
MS → TRUST	0.427	5.311	0.000
TRANS → TRUST	0.190	2.066	0.039
TRUST → ECR	0.589	6.801	0.000
TRUST → KP	0.522	6.160	0.000
TRUST → POSLP	0.798	18.172	0.000
TRUST → TROŠ	0.461	5.044	0.000
TRUST → UČINK	0.779	18.198	0.000
TRUST → ZK	0.711	12.904	0.000

In Table 5.1., alongside the estimated coefficient values, you can see the t-value and the p-value obtained through bootstrapping. From the table, it is evident that all relationships are statistically significant, except for the influence of information sharing on trust and the influence of communication on trust. These results indicate the rejection of two sub hypotheses:

H1b: Improved communication positively influences trust between organic agri-food supply chain actors.

H1c: Information sharing positively influences trust between organic agri-food supply chain actors.

Communication is often considered a strong precursor to trust (Doney et al., 1997; Kottila and Rönni, 2008; Puspitawati, 2011), and producers, in relation to retailers, more commonly perceive communication as a precursor to trust (Viitaharju and Lähdesmäki, 2012).

Schulze-Ehlers *et al.* (2006) and Fritz and Fischer (2007) agree that the most important determinants of trust in the agri-food supply chain are the quality of communication achieved through the frequency of communication and the quality of information, along with the experience of collaboration. These findings were not confirmed by this study.

Furthermore, different literature shows different precursors of trust within the OAFSC, among which information exchange plays an important role (Batt, 2003; Fritz and Fischer, 2007; Zhang and Hu, 2011; Boniface, 2012; Sun *et al*., 2018). However, some previous research also points to a lack of trust among actors of the OAFSC, for example, due to problematic information flow within the supply chain and a lack of quality communication, which particularly affects the personal and process dimensions of trust (Anastasiadis and Pool, 2015). We assume that in the case of this study, there was significant dispersion in the responses of OAF producers, especially due to differences in their size and strength in OAFSC compared to retailers. Preliminary research (Gajdić *et al.*, 2021) also indicated problems in the exchange of information between OAF producers and retailers, and that information exchange did not significantly impact the trust of OAF producers in retailers because trust is mainly built on prior experience of quality and fair collaboration. One of the problems is that communication and information exchange between producers and retailers mainly revolve around information about prices and delivery conditions, and producers cannot express their true attitude regarding these trust indicators.

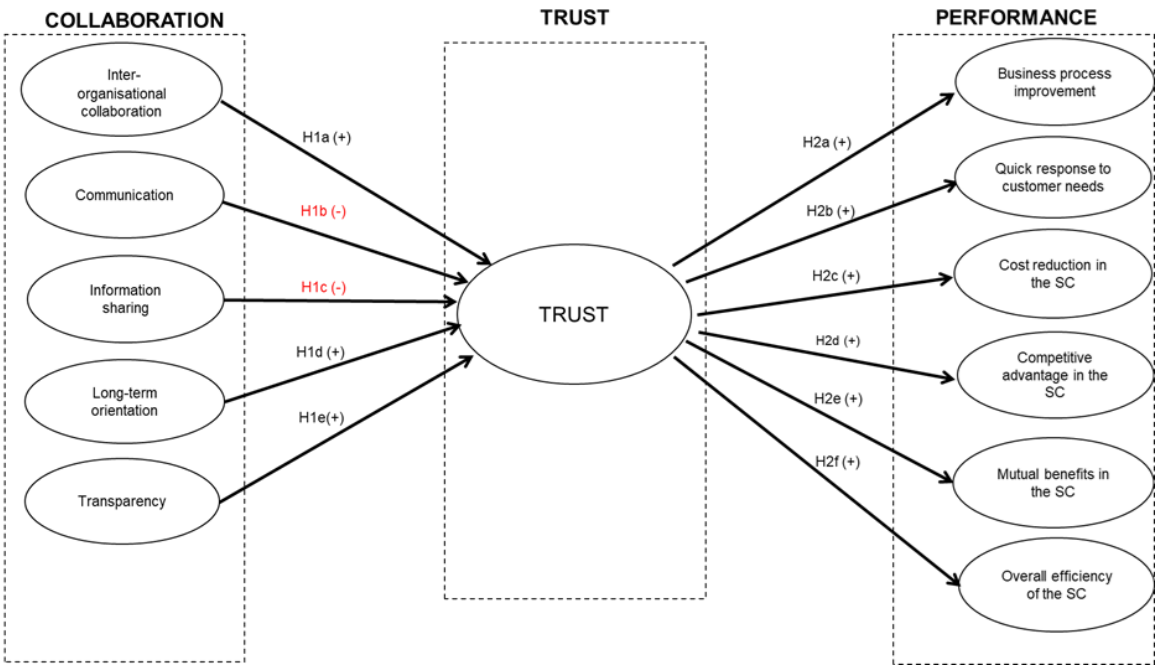

Figure 5.3. Results of the tested conceptual research model

So, regarding the collaboration among actors of the SC, two out of five dimensions of collaboration do not significantly impact trust in the OAFSC (Figure 5.3.). The other elements of collaboration significantly, and positively, influence trust in the SC. Following further auxiliary hypotheses, we start with *interorganizational collaboration*.

In the final model, 11 out of the initial 13 statements reflecting this construct remained. Referring to the statements related to *interorganizational collaboration* and *trust*, it can be concluded that OAF producers who are more satisfied with their collaboration with retailers, are flexible, believe that retailers adhere to all agreements, are understanding, and are willing to recommend their retailer to others because they trust them, consequently have more trust in their retailer, rely on them, are confident in their motives, have a good relationship with them, and are more loyal. This finding supports the acceptance of sub hypothesis *H1a: Inter-organizational collaboration positively influences trust between organic agri-food supply chain actors.*

Trust is built over time in the business relationship between OAF producers and retailers. Thus, as the willingness to collaborate between OAF producers and retailers increases, trust is built and established. Similar findings were reached in research by Fischer (2013) and Amentae *et al.* (2018).

Furthermore, it is evident that there is a significant positive impact of *long-term orientation* on *trust* in the OAFSC. This indicates that OAF producers who believe more in the long-term business together with the retailer, work on planning future demand, invest in long-term relationships, etc., consequently have a higher level of trust and loyalty to their retailer. This leads to the conclusion that sub hypothesis *H1d is accepted: Long-term orientation positively influences trust between organic agri-food supply chain actors.* The connection between long-term orientation and trust in the food SC is also explained in some of the earlier studies. However, the results of these studies consider long-term orientation through the concept of loyalty and the impact of trust on loyalty and long-term cooperation (Mutonyi *et al.*, 2016). According to Boniface *et al.* (2010), supplier loyalty refers to the supplier's motivation to continuously sell their products to the same customer and establish long-term relationships with them. Research has shown that trust is an essential element that increases loyalty and influences long-term cooperation, i.e., trust is an intermediary between customer satisfaction and loyalty (Boniface *et al.*, 2010; Lobo *et al.*, 2013; Susanty *et al.*, 2017). However, in this research, it was shown that different factors of building long-term cooperation actually affect the creation of trust between OAF producers and retailers.

As the last element of collaboration, transparency is observed, for which 6 out of 7 statements remained in the final model. The PLS-SEM model confirms the existence of a significant positive impact of transparency on trust in the SC. In other words, OAF producers who believe more that retailers offer them a fair and reasonable price, that all conditions regarding delivery and payment are clearly defined, that price data are accurate and transparent, and that prices are known in advance, and that retailers share all comprehensive accurate information with them, consequently show a higher level of trust, reliability, and loyalty to their retailer. This result supports the acceptance of sub hypothesis *H1e: Transparency positively influences trust between organic agri-food supply chain actors.* The research results are in line with previous studies on the impact of transparency on trust (Puspitawati *et al.*, 2013). However, this research is specific because it also investigates transparency through some other dimensions that do not only relate to price, which predominantly dominates the literature (Somogyi and Gyaua, 2009; Boniface *et al.*, 2010; Mutonyi *et al.*, 2016).

Considering that out of the analyzed 5 elements of collaboration, 3 elements show a statistically significant impact on trust, while the other 2 are not significant, it can be concluded that the main hypothesis H1 is partially accepted: *Collaboration positively influences trust between organic agri-food supply chain actors.* Among the observed elements of collaboration, interorganizational collaboration has the greatest impact on trust.

Furthermore, the second main hypothesis is tested, which examines the impact of trust on the performance of the OAFSC, where performance is reflected through 6 constructs. According to Odongo *et al.* (2016), from the supplier's perspective, trust was the main factor contributing to improving performance in the maize agri-food SC. The first dimension by which the performance of the OAFSC is tested is the improvement of business processes. The impact of trust on this performance factor is extremely high and positive and statistically significant. This indicates that producers who have higher trust in their retailer, who respect their beliefs and traditions, are honest and reliable, have sincere motives, consider the retailer as a partner and remain loyal to them, consequently believe more that this trust in the retailer improves operational efficiency, ensures fast orders, better production planning, coordination, and optimization of business processes, and better flexibility in delivery quantities. Therefore, hypothesis *H2a: Trust between supply chain actors positively influences business process improvement in the organic agri-food supply chain* is accepted. This is in line with the research of Bandara (2017) and Mesić *et al.* (2018). In Bandara's study (2017), trust is considered one of the key elements of the quality of cooperation and it is confirmed that it significantly affects

relations in Australian OFSCs as well as operational efficiency. However, in this research, a greater number of parameters were used to measure the impact of trust on business efficiency, which provides a more detailed insight into different segments of business performance.

A significant positive impact of trust on the ability to respond quickly to customer needs in the OAFSC was found. Thus, OAF producers with a higher level of trust in their retailer resolve customer complaints faster and more reliably, which leads to greater customer satisfaction, deliver orders to the retailer on time, and with greater reliability. Therefore, hypothesis *H2b: Trust between supply chain actors positively influences the ability to quickly respond to customer needs in the organic agri-food supply chain* is accepted. Trust between OAF producers and retailers results in the ability to respond quickly to customer needs because both actors in the chain jointly detect and realize market needs through collaboration. In addition, OAFSCs in Croatia are characterized by flexibility because they consist of smaller OAF producers who easily adapt to the needs of retailers, which was positively confirmed in the context of the impact of interorganizational collaboration on trust. This ultimately results in a positive impact of trust on the ability to respond quickly to customer needs. Similar results are found in Bandara's study (2017), where the impact of trust on the ability to respond quickly to customer needs is discussed in the context of achieving supplier operational performance.

While in the research model of Gellynck *et al.* (2008) and Mesić *et al.* (2018), the ability to respond to customer needs is one of the constructs for measuring performance in the traditional food supply chain. The results of the mentioned research are also in line with these findings that trust has a significant impact on the ability to respond to customer needs. This is mainly due to the fact that, in order to respond to customer needs, it is necessary to have full confidence that both chain actors will contribute equally to meeting these needs. Furthermore, trust significantly affects customer complaints and positively influences the ability to respond to customer needs, which increases customer satisfaction. Therefore, the relationship between trust and customer satisfaction is linear. This implies that trust has a significant impact on customer satisfaction. Trust is the foundation on which the collaboration of OAF producers with their retailer is built, which means that a positive impact of trust on customer satisfaction is due to the fact that trust significantly influences the quality of products and services, reduces the risk of making wrong decisions, creates mutual respect, and builds a positive relationship (Doney and Cannon, 1997; Ganesan, 1994).

The reduction of costs in the OAFSC is the next dimension by which the performance of the SC is reflected. According to some earlier research (Boniface *et al.*, 2010; Ye and Xu,

2009), trust is considered to be a significant factor for reducing costs in the SC, which is also confirmed in this research. Producers who have higher trust in their retailer reduce costs related to transport, storage, and holding of goods. Therefore, hypothesis *H2c: Trust between supply chain actors positively influences cost reduction in the organic agri-food supply chain* is accepted. The results of this research are in line with some previous findings (Doney and Cannon, 1997; Ganesan, 1994; Boniface *et al.*, 2010; Ye and Xu, 2009), where trust is considered as a significant factor of cost reduction, but are more specific because they examine different cost elements in the SC. In particular, they discuss the influence of trust on reducing transportation costs, storage, and holding goods. Transport costs are reduced because the producers trust their retailer more, which means that they deliver a larger amount of goods at one time, which reduces the cost of transport and time. In the same way, trust also affects storage costs, which are lower due to the greater reliability of delivery. By establishing long-term cooperation, the retailer is more confident in the quantities and quality of goods and can more accurately plan the storage space.

Moreover, a significant positive impact of trust on a better understanding of customer needs was identified. OAF producers with a higher level of trust in their retailer are more oriented towards understanding customer needs and requirements. Thus, hypothesis *H2d: Trust between supply chain actors positively influences achievement of competitive advantages in the organic agri-food supply chain* is accepted. Trust in the SC is built over time and is a condition for a successful collaboration, which implies that trust positively influences the understanding of customer needs and requirements, as well as the development of customer orientation, which was also confirmed in the context of interorganizational collaboration. A better understanding of customer needs increases the loyalty of OAF producers, their competitiveness, and their business profitability (Kotler and Keller, 2016).

The ability to achieve a common benefit is the next dimension of performance tested. The results show that the trust has a statistically significant positive impact on this dimension of performance. OAF producers who have higher trust in their retailer believe that this trust increases the revenue from the sale of their products. In other words, the better the trust in the SC, the better the overall business performance, and the higher revenue from the sale of products, but also the lower risk in business operations. Therefore, hypothesis *H2e: Trust between supply chain actors positively influences the achievement of mutual benefits in the organic agri-food supply chain* is accepted. Trust has a significant impact on the ability to achieve a common benefit because trust significantly influences the quality of products and

services, reduces the risk of making wrong decisions, creates mutual respect, and builds a positive relationship (Doney and Cannon, 1997; Ganesan, 1994).

The sixth and final concept by which the performance of the OAFSC is reflected is the environmental performance. The research results show that trust has a significant impact on this dimension of performance. OAF producers who have more trust in their retailer also believe that this trust positively affects the environmental performance of their business.

This conclusion supports the acceptance of hypothesis *H2f: Trust between supply chain actors positively influences the overall efficiency of the organic agri-food supply chain*. Higher levels of trust among SC actors have a direct positive effect on aligning interests throughout the chain (Gagalyuk *et al.*, 2013). However, the efficiency of the entire SC has not been operationalized in the way presented by this model. Among other things, this model attempted to gain insights into how trust affects the sustainability and stability, as well as the ecological performance of the OAFSC, and the mutual reputation of OAF producers and retailers. However, OAF producers were unable to assess whether mutual trust affects the mutual reputation or reputation of partners in the chain.

In Figure 5.4., within the endogenous constructs, we can observe the coefficients of determination (R-squared values). The highest coefficient is for the TRUST construct, representing trust (0.869). All the other coefficients are also extremely high (above 0.26), indicating that the model has high explanatory power (Ringle *et al.*, 2014). Specifically, the amount of variance in endogenous constructs explained by all related exogenous constructs is very high throughout the model.

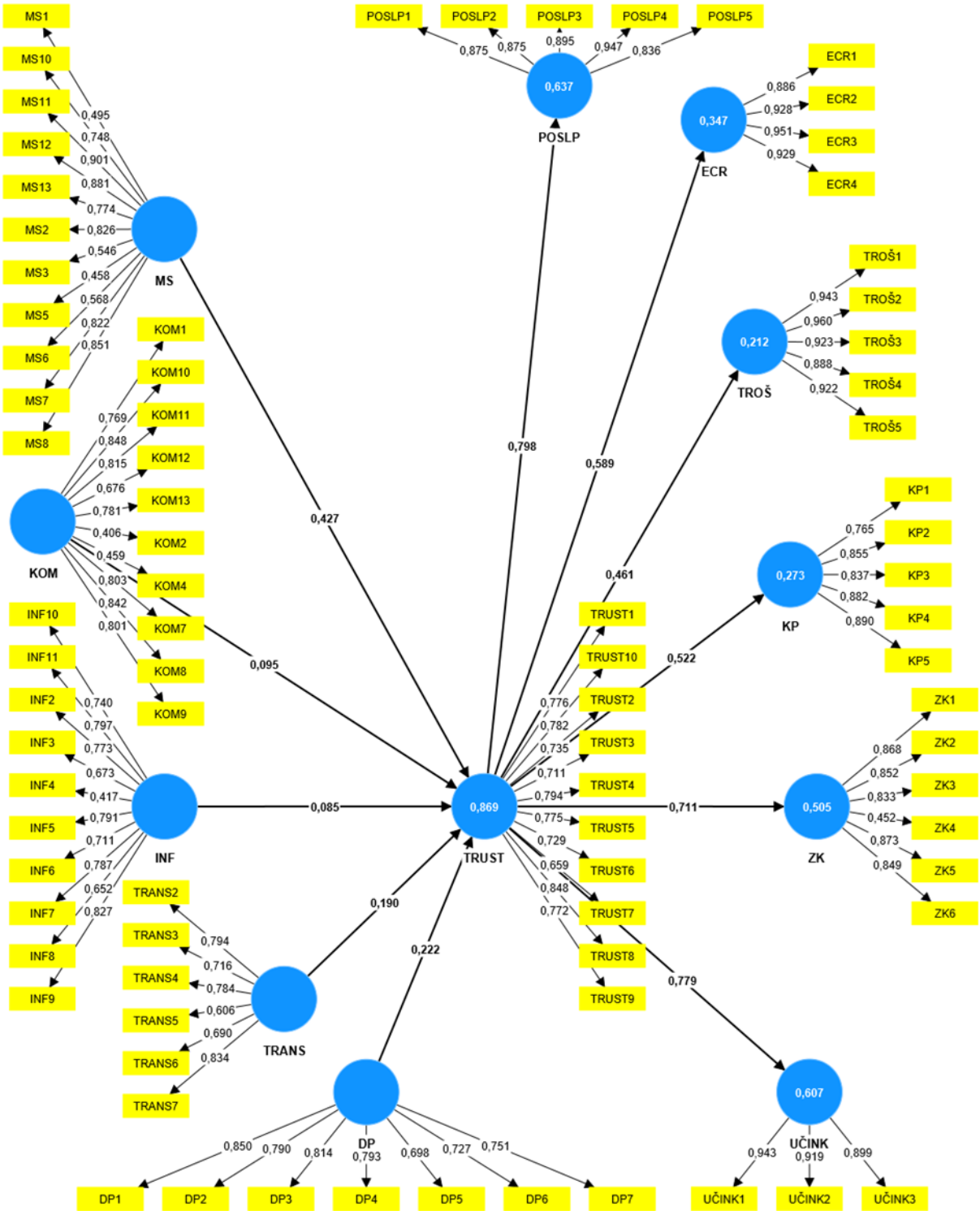

Figure 5.4. Path Diagram of the Estimated Model for OAF producers

5.5.3. Food retailers' characteristics

A total of 22 retailers participated in the research. Considering the representation of retailers in the Croatian retail market, in line with the Agency for the Protection of Market Competition Report (2022): Market Overview of Retail Trade in Mixed Goods, Predominantly Food, Beverages, and Household Hygiene Products in Croatia in 2021, it can be concluded that the sample included a portion of the largest retailers of mixed goods in 2021, based on their revenue in the retail trade of mixed goods in Croatia, as well as retailers registered as specialized food stores. Sampling and the number of participants in field studies can depend on numerous factors such as research objectives, research complexity, available time, and costs (McGivern, 2009), as well as the structure and specific characteristics of the participants and the market itself.

Previous research has shown that obtaining feedback from retailers is very challenging, and the response rate for participation in research is often very low (Zander and Baske, 2014; Anastasiadis and Poole, 2015). Therefore, researchers conducting market-oriented research on food supply chains often opt for case studies and individual examples (Kottila and Rönni, 2008; Mikkola, 2008; Anastasiadis and Poole, 2015), which make it difficult to draw general conclusions. Considering previous research in the field of OAFSCM, it can be stated that the response rate is satisfactory, especially considering that the respondents were retailers who are generally reluctant to participate in research (Petljak *et al*., 2018; Mikkola, 2008; Zander and Baske, 2014), or respondents in high-ranking positions in the retail industry. Comparing the obtained response rate with other studies in the field of collaboration in food SCs, and taking into account that the research was conducted in an underdeveloped OAF market, it can be concluded that the research results indicate a representative state in the Croatian retail market of OAF.

The participants included employees from the procurement department (36.40%), company management (13.60%), company owners (13.60%), company directors (9.10%), business owners (4.50%), quality management department employees (4.50%), and supply chain management department employees (4.50%). The majority of participants, specifically 16 retailers or 72.73%, were registered as LLCs (limited liability companies), two as sole proprietorships, two as cooperatives, and one each as a joint-stock company (d.d.) or a limited partnership.

In terms of ownership structure, most retailers (20 or 90.90%) were privately owned, with only two being cooperative-owned. Regarding the duration of business operations in the

Croatian market, 10 retailers, or approximately 45.00%, had been in operation for more than 10 years, 7 or 32.00% for 5 to 10 years, and 5 retailers or 23.00% for less than 5 years. A total of 15 retailers, or approximately 70.00%, were privately owned, 18.00% or 4 retailers had mixed ownership, and two retailers were foreign-owned.

According to the current Accounting Act and the classification of companies by size, the survey included 5 large, 4 medium-sized, 4 small, and 9 micro retailers. Among the respondents, there were a total of 9 retailers that operated only in the local (Croatian) market, 4 retailers operated in both local and regional markets, 6 operated in the national market, and 3 retailers were international, meaning they operated in international markets.

Regarding the retail format, 50.00% of retailers operated in smaller stores, neighborhood stores, or specialized stores, 13.00% in supermarkets and hypermarkets, 9.00% in mini-markets, one retailer was in the drugstore category, and some mentioned that they also sold products online through web shops.

Approximately 45.00% of retailers stated that they collaborated with a maximum of 25 Croatian producers, five collaborated with up to 10 producers, five retailers collaborated with 6 to 10 Croatian organic product suppliers, 4 retailers collaborated with up to 5 suppliers, two retailers worked with up to 50 suppliers, and only one retailer collaborated with more than 50 suppliers of Croatian ecological agricultural and food products. However, such a large number of suppliers did not necessarily indicate continuous and consistent collaboration.

Most of the participants had a high level of education (45.50%), followed by those with secondary education (22.70%), higher vocational education (18.20%), and master's or doctoral degrees (13.60%). Most participants were between the ages of 41 and 50 years (8 participants), followed by those between 31 and 40 years (7 participants), 4 participants were between 20 and 30 years old, 2 participants were between 51 and 60 years old, and only one participant was over 61 years old.

5.5.4. Results of the research conducted on the sample of retailers

Similar to producers, for retailers, each of the mentioned hypotheses comprises a certain number of auxiliary hypotheses, each related to each individual element of the main concept of each hypothesis. Specifically, hypothesis H1 is divided into 5 sub hypotheses, each based on one element of collaboration, while hypothesis H2 is divided into 6 sub hypotheses, each related to one element of success. Due to the nature of variables that are not directly measurable, data were also analyzed using the same method, PLS-SEM (Partial Least Squares Structural

Equation Modeling). Additionally, a test of multivariate normality concluded that this assumption was not met ($z = -142.86$, $p < 0.001$). Furthermore, the sample size for retailers is only 22, which further supports the choice of the PLS-SEM method. Latent variables were indirectly measured through a questionnaire, with statements on a scale from 1 to 5 that closely follow those listed for consumers, adapted for the retailer context. Data were analyzed using the SmartPLS 4 software.

To test the hypotheses, a PLS-SEM (Partial Least Squares Structural Equation Modeling) model was estimated. The independent variables explaining the collaboration variable included interorganizational collaboration (MS), communication (KOM), information sharing (INF), long-term orientation (DP), and transparency (TRANS). Trust (TRUST) in this model represents an endogenous construct that simultaneously functions as a dependent and independent variable. Other endogenous constructs explaining the success variable and exclusively representing dependent variables are: improvement of business processes (POSLP), ability to respond quickly to customer needs (ECR), reduction of supply chain costs (TROŠ), achieving competitive advantages of the supply chain (KP), achieving mutual benefits of supply chain actors (ZK), and complete supply chain efficiency (UČINK). Table 4. displays all statements from the questionnaire related to each observed concept of collaboration, trust, and performance.

During the assessment of the PLS-SEM model, several indicators were excluded from the model in order to achieve convergent validity. However, a problem of discriminant validity was identified in the model, even after assessing the confidence interval for the HTMT (Heterotrait-Monotrait) indicator. As a result, correlations between indicators of different constructs were analyzed, and a discriminant validity problem was detected. Through a detailed analysis of these correlations, additional indicators were excluded from the model, particularly those that showed exceptionally high correlations with constructs that were not supposed to be measured by those indicators according to the model's specifications.

Even after excluding these indicators and re-evaluating the model, the problem persisted. Therefore, the next approach was to consolidate indicators into more general constructs based on theoretical assumptions (Vuković, 2022). Ultimately, the model was simplified and consisted of only 3 constructs: collaboration, trust, and success (Figure 5.5.), where the collaboration and performance constructs were measured by a group of indicators related to their different elements.

Due to the need to consolidate indicators into more general constructs, the model for retailers' tests only the main hypotheses, as the problem of discriminant validity in a more complex model divided into dimensions of two constructs does not allow for testing sub hypotheses. **Appendix D Table 5.** presents the set of statements that remained in the final model for each individual construct.

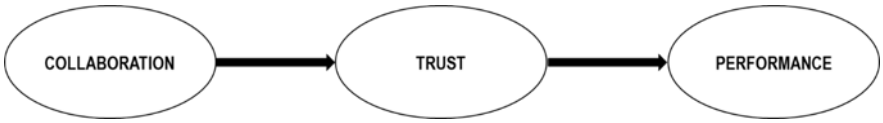

Figure 5.5. The final conceptual model of the study conducted on the sample of retailers

For the estimated model, convergent validity and the reliability of constructs were first assessed. **Appendix D Table 6.** displays the results of the *Cronbach's alpha* coefficient, the composite reliability indicator, and AVE (Average Variance Extracted) for each individual construct. It can be concluded that there is internal consistency in all constructs, given the high values of the *Cronbach's alpha*. Although the coefficient for the trust construct is slightly lower, it is still acceptable, especially in the context of a research study, particularly when analysing a specific type of retailers. Additionally, this coefficient can sometimes yield lower values when the construct has a smaller number of indicators, as is the case here. Furthermore, the results of the composite reliability are shown, where all values are significantly above the threshold of 0.7, confirming once again the conclusion of high construct reliability. Moreover, the AVE for all constructs exceeds the threshold of 0.5, indicating that each construct explains more than 50.00% of the variance in its indicators. The analysis demonstrates that in this model, all selected indicators effectively explain their respective constructs. Additionally, the table shows that for explaining collaboration, the elements related to communication contribute the most (in contrast to the findings for producers), with the highest levels of outer loadings. For explaining success, cost-related elements contribute the most, while for OAF producers, trust has the greatest impact on business processes.

Furthermore, discriminant validity was also tested using the HTMT (Heterotrait-Monotrait) indicator (**Appendix D Table 7.**). The analysis shows that consolidating collaboration elements into one construct, as well as consolidating success elements into a single construct, yields satisfactory results from this perspective. Specifically, all HTMT indicators are lower than the threshold value of 0.85, confirming the presence of discriminant

validity in the simplified model. Therefore, for each of the three constructs, it can be concluded that they represent a unique concept in the model, distinct from the others.

The results of the structural model analysis are presented in Table 5.2. and Figure 5.6.

Table 5.2. Results of the structural model for retailers

Assumed relationship	Structural coefficient	t	p
trust → performance	0.666	7.013	0.000
collaboration → trust	0.620	4.838	0.000

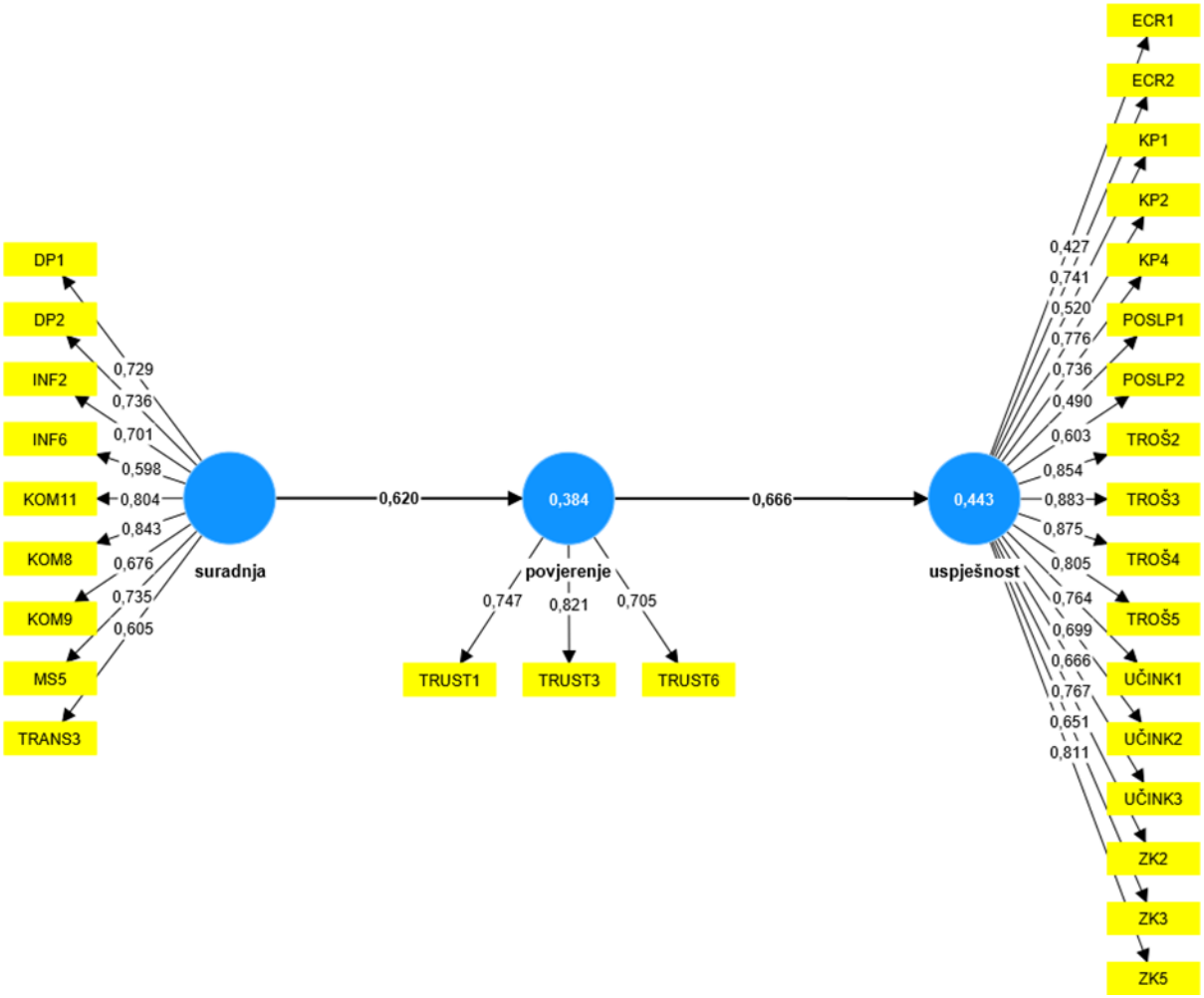

Figure 5.6. Path diagram of the estimated model for retailers

It can be concluded that both relationships in the model are statistically significant. A positive and significant influence of collaboration on trust is evident. Considering the statements in the model, this leads to the conclusion that retailers who perceive their business with organic food suppliers as less risky, have high-quality and frequent communication with

their suppliers, regularly exchange information about business operations, are well-informed about supplier business policies, aspire to long-term business and future demand planning, and consider all conditions related to supplier business to be clear and transparent are more likely to view their suppliers as honest partners who respect their beliefs and traditions. In other words, better collaboration between retailers and suppliers increases their trust in the supplier. Therefore, hypothesis H1: *Collaboration positively influences trust between organic agri-food supply chain actors.*

The perceptions of retailers are also crucial for promoting the quality of relationships in OAFSCs. However, previous analyses have shown that there is a significantly smaller body of work that examines the attitudes of retailers towards the quality of their relationships with suppliers. A detailed review of the literature also indicates a significant research gap in the relationships within OAFSCs. For comparison, the findings of Kottila and Rönni (2008) can be analysed, where two supply chains of organic products in Finland (fresh produce and long-shelf-life products) were examined. In their research, they found that neither power imbalances nor differences in values presented insurmountable obstacles to establishing collaborative relationships in organic food chains, and that quality communication was necessary to build trust. In both cases, the relationship between OAF producers and retailers was characterized by distrust from the producers' perspective, while retailers valued good relationships with suppliers but ultimately relied on their own competence. The distrust of producers towards retailers suggests that some form of communication is necessary to build trust.

Research on collaboration in a small and short OFSC in Finland (Mikkola, 2008) showed that the chain largely relied on a "social and networked tone" with local stakeholders both upstream and downstream and aimed to stabilize with local supply and demand. Small local producers need to be given better access to retailers and individual supermarkets; otherwise, organic food will mainly be sold at the local and regional levels through direct channels, limiting the further growth of OAFSCs. In addition, networking of small organic producers is necessary to access larger retailers (Mikkola, 2008; Gajdić *et al.*, 2021). Retailers stated that good previous experiences with producers as business partners and their competencies in market transactions (e.g., knowledge of the retail sector and expertise in using electronic ordering systems) can positively enhance the development of trust, which is in line with research in the Finnish food chain (Viitaharju and Lähdesmäki, 2012).

Furthermore, research results show a statistically significant positive influence of trust on performance. Looking at the indicators representing these concepts, it can be concluded that

in the case of retailers with higher trust in their OAF suppliers, operational efficiency improves, order speed increases, complaint resolution speed increases, customer satisfaction rises, various costs decrease, competitive advantage grows, profit and cash flow increase, business risk decreases, and overall, there is greater business stability and better environmental performance. In simpler terms, retailers who have a higher level of trust in their suppliers have more successful operations within the SC in terms of all performance indicators. Therefore, hypothesis *H2: Trust between supply chain actors positively influences organic agri-food supply chain performance can also be accepted*.

In conclusion, Uddin's (2017) research demonstrated that the low level trust between buyers and suppliers, as well as the isolation of producers from the rest of the food SC, have an impact on the profitability and productivity of the food supply chain. However, it was found that while retailers believed in the indirect role of trust in their day-to-day operations and performance, they still relied on written terms and regulations, with the traditional market arrangement based on close relationships and personal trust being a better choice for producers (Lobo *et al.*, 2013; Uddin, 2017). These findings align with the results of this study.

A study on the attitudes of retailers (Jie and Gengatharen, 2019) regarding how trust and commitment to trading partners influence SC practices and the performance of the Australian food SC revealed that the quality of information exchange significantly affects the efficiency of the food SC for retailers, but it was not proven that trust affects performance, specifically the efficiency of the chain. This contrasts with our research, but it is not entirely comparable because it concerns very different food SCs, considering the actors, structure, and development of the food SC.

5.6. Testing the differences between the supply chains of organic agri-food products depending on the type of product

The research hypothesis H3 examines the differences in the quality of collaboration and mutual trust between OAF producers and retailers based on the type of product (fresh or processed products) in the OAFSC. *H3: There are differences between the supply chains of organic agri-food products depending on the type of product that is distributed (fresh organic agri-food product or processed product).*

The supply chains of organic agri-food products are examined through the lens of interorganizational collaboration (MS) and trust (TRUST) between OAF producers and

retailers, with each construct being measured by a series of statements on a Likert scale. Therefore, H3 can be further divided into two sub-hypotheses:

H3a: There are differences in interorganizational collaboration in supply chains of organic agri-food products based on the type of product distributed through the supply chain (fresh organic agri-food products or processed products).

H3b: There are differences in trust in supply chains of organic agri-food products based on the type of product distributed through the supply chain (fresh organic agri-food products or processed products).

The statistical significance of differences in OAFSCs was examined using an independent samples t-test. The t-test was used to determine if there is a statistically significant difference in the means of the attitudes of OAF producers regarding interorganizational collaboration and trust in retailers based on the type of product distributed through the supply chain (fresh organic agri-food products or processed products). In other words, the study aimed to determine if differences in interorganizational collaboration and trust in OAF supply chains could be justified by the type of product being distributed. The results of the analysis (**Appendix D Table 8.**) indicate that OAF producers in the supply chain of fresh OAF products tend to rate interorganizational collaboration with their customers (retailers) more positively compared to producers of processed products.

The Levene's test confirmed that the assumption of homogeneity of variances was met for all the variables that make up the construct of interorganizational collaboration. Further analysis was conducted to examine the statistical significance of differences in the mean ratings of interorganizational collaboration. The results of the t-test are presented in **Appendix D Table 9.**

Although there is a difference in the perception of interorganizational collaboration with retailers between the group of fresh OF producers and the group of processed OF producers, this difference was not confirmed as statistically significant. Based on the p-values and a significance level of 5%, the type of product distributed through the SC was identified as a statistically significant discriminator in only two variables that make up the interorganizational collaboration construct: MS2 - "I am satisfied with the collaboration with my retailer" and MS7 - "The retailer always adheres to our agreement," with the note that variable MS7 is borderline significant. In both cases, fresh OAF producers rated their collaboration with retailers significantly higher compared to processed product producers.

Based on the results presented in **Appendix D Table 9.**, the conclusion is drawn that hypothesis H3a cannot be accepted.

Furthermore, the effect size measured by Cohen's d-statistic (Cohen, 1988) indicates that the grouping variable (type of product) has a strong effect on shaping interorganizational collaboration when it is confirmed as statistically significant (Table 5.3.).

Table 5.3. The effect size of product type on inter-organisational collaboration

	Cohen's d
MS2_I am satisfied with the collaboration with my retailer.	,638
MS7_Retailer always honours our agreement.	,527

The construct of trust (TRUST) was constructed from a total of 10 variables - individual statements rated on a scale from 1 to 5. **Appendix D Table 10.** shows the mean ratings of individual statements and the construct itself in two observed independent samples: the supply chain of fresh OAF and the supply chain of processed products. In general, it can be concluded that producers in the supply chain of fresh OAF products have more trust in their customers compared to producers of processed products.

The Levene's test confirmed that the assumption of homogeneity of variances was met for all the variables that make up the construct of trust. Further analysis was conducted to examine the statistical significance of differences in the mean ratings of trust between the two supply chains. The results of the t-test are presented in **Appendix D Table 11.**

Although there is a difference in the perception of trust towards retailers between the group of fresh OAF producers and the group of processed product producers, this difference was not confirmed as statistically significant. Based on the p-values and a significance level of 5%, the type of product distributed through SC was identified as a statistically significant discriminator in only one variable out of the ten that make up the trust construct: TRUST3 - "Retailer has been fair in negotiations with me.". In this case, fresh OAF producers rated their trust in the supply chain significantly higher compared to processed product producers. Based on the results presented in Table 5.4., the conclusion is drawn that hypothesis H3b cannot be accepted.

The effect size, as measured by Cohen's d-statistic, indicates that the grouping variable (type of product) has a strong effect on shaping trust in the SC (Table 5.4.).

Table 5.4. The effect size of the type of product on trust

	Cohen's d
TRUST3_ Retailer has been fair in negotiations with me.	,535

In conclusion, it can be stated that hypothesis H3 cannot be accepted. In other words, it has not been confirmed that there are differences between supply chains of organic agri-food products concerning the type of product distributed within these supply chains (fresh OAF products or processed products). This result is in contrast to preliminary research (Gajdić *et al.*, 2021), which indicated that the dependence of organic agri-food producers on retailers is influenced by the quantity of production and the type of product (fresh or processed). However, this preliminary study was conducted on a small sample of organic agri-food producers.

Findings from Orsini *et al.* (2020) suggest that in developed organic food markets such as Denmark, France, Germany, and the UK, the sale of fresh organic food products is more prominent in supermarkets compared to specialized organic food stores where processed products are more common. They also suggest that the type of food product influences the choice of different sales channels, not just the stage of development of the organic food market. This is in line with data from FiBL (2020), which shows that most organic food in Europe is sold through supermarkets, although their data is not specific to product type.

The research by Viitaharju and Lähdesmäki (2012) highlights the importance of product characteristics in developing trust between producers and retailers. If a product is attractive to consumers and suitable for retail, trust can be easily developed. It is also important that the product is recognizable to consumers. Product differentiation is mentioned as a prerequisite for building trust that underpins long-term collaboration. The quality of the product also has a significant impact on the negotiating power of producers, especially in the case of processed products.

Previous research (Gajdić *et al.*, 2021) suggests that high-quality products, especially processed ones, give producers greater bargaining power, especially in price negotiations. The dependence of producers on retailers is more common among larger producers, which is associated with higher production volumes and greater distribution of products through retailers. Collaboration between small-scale producers and small retailers at the local and regional levels is often considered successful, especially for fresh products.

The mentioned research also emphasizes the importance of interpersonal trust in such relationships. Collaboration with large retail chains often brings more uncertainty, while

collaboration with small retailers is often informal and based on trust. For future research, it is suggested to examine the perception of collaboration, trust, and the success of relationships among actors of the OAFSC, taking into account the size of business entities (producers and retailers) to determine if there are differences depending on the size of the partners in the SC.

5.7.Conclusion

In the study by Amentae *et al.* (2018), the interdependence of Collaboration (C), Trust (T), and Performance (P) is explored. The research confirmed that willingness to collaborate influences trust, and conversely, trust influences collaboration. Additionally, the study confirmed the impact of collaboration and trust on the choice of SCM and the influence of management choices on various aspects of OAFSC, such as efficiency, flexibility, quality, and safety in the SC. This aligns with the conceptual research model set in this study. In the work of Naspetti *et al.* (2011), trust is also central to relationships in the organic food chain as a prerequisite for collaboration and success, which is consistent with the research model set here. It was found that trust influences success in organic SCs, but with the assumption that the effect of trust on financial success is not direct but mediated by increased collaboration.

This research has shown that retailers perceive regular information exchange and quality, open communication with their suppliers as important indicators of quality collaboration, which significantly affects trust. This is in contrast to the attitudes of OAF producers in Croatia. Retailers tend to focus on long-term business relationships, where they view their suppliers as partners in business, which is the basis for building trust. Trust can significantly impact cost minimization and lead to better financial performance for both partners, in line with the findings of Callado and Jack (2017) regarding the attitudes of producers and retailers in agricultural-food SCs for fresh fruits in the UK.

Anastasiadis and Poole (2015) highlight key differences between developed and newly emerging organic food chains in Greece. They believe that poor coordination and collaboration stem from distrust towards retailers and the use of "power" by retailers, especially wholesalers. This is primarily a result of negative past experiences. The findings of this research have shown that although the Croatian organic food market falls under the category of new and still underdeveloped markets, the OAF chains in Croatia are characterized by a high level of trust, from the perspective of both producers and retailers. This trust is based on a history of quality collaboration that leans towards long-term business relationships. Similar results were obtained

in the study by Zander and Baske (2014) in the developed organic apple market in Germany, where relationships within the chain were characterized by a high degree of satisfaction, trust, and commitment. German retailers described their relationship with suppliers using terms like "reliable", "honest", "confidential", "consistent", "safe" and "market-oriented" in a positive sense." When asked to associate relevant terms with their relationships with retailers, all apple growers mentioned "reliability" Further attributes included "competence", "trust", "friendship", "honesty", "continuity" and "fairness". This confirms the empirical relevance of the quality of relationships and their impact on competitiveness.

The next limitation of the conducted research lies in the lack of publicly available data on the organic market, especially data on specific products (similar to Home *et al.*, 2017), and the unwillingness of market participants, especially retailers (Orsini *et al.*, 2020; Kottila and Rönni, 2008; Zander and Baske 2014), to share market and other information and participate in scientific research. Overall, there is a lack of data, and very few empirical studies have been conducted on the fundamental dynamics of OAFSCs - how they relate to the market environment and how the mutual collaboration of chain members affects the overall success of the SC. The conceptual model was tested on the OAFSC, and it is suggested that its validity be checked on other agricultural and food product chains that are not organic and are more developed in Croatia. In future research, it should further examine the relationship between small and large business partners (especially retailers) to better explain and understand the nature and dynamics of asymmetric relationships, and the consequences of asymmetry for small agricultural businesses. From a managerial perspective, it is important to know how asymmetric relationships function to successfully manage such relationships.

In conclusion, this research examines the impact of collaboration and trust on the success of OAFSCs between producers and retailers in the Croatian organic product chain. Therefore, there are certainly cultural and economic factors that influence the findings, which can be considered limitations and should be taken into account when discussing the results. If business partners are not aware of certain collaboration factors that significantly affect the trust valued by the other party, this can create a sense of mistrust and hinder the development of relationships on deeper levels. By revealing significant differences in the perception of trust, this work enables both researchers interested in business relationships and practitioners to better understand the challenges that SC actors face in dyadic relationships, especially where the relationship is characterized by asymmetry. If producers and retailers have different perceptions of the factors that influence the development of trust and, consequently, trust in the success of

the supply chain, it is possible that a gap may be created between the expectations and perceptions of producers and retailers, which can lead to misunderstandings and poor interorganizational collaboration in the dyadic relationship.

In conclusion, this research examines the impact of collaboration and trust on the performance of organic agri-food supply chains between producers and retailers in the Croatian OAFSC. Therefore, there are certainly cultural and economic factors that influence the findings, which can be considered limitations and should be considered when discussing the results. If business partners are not aware of certain collaboration factors that significantly affect the trust valued by the other party, this can create a sense of mistrust and hinder the development of relationships on deeper levels. By revealing significant differences in the perception of trust, this work enables both researchers interested in business relationships and practitioners to better understand the challenges that SC actors face in dyadic relationships, especially where the relationship is characterized by asymmetry. If producers and retailers have different perceptions of the factors that influence the development of trust and, consequently, trust in the success of the supply chain, it is possible that a gap may be created between the expectations and perceptions of producers and retailers, which can lead to misunderstandings and poor interorganizational collaboration in the dyadic relationship.

Chapter 6

CONCLUSIONS

- Concluding remarks
- Scientific contribution and research implications
- Research limitations and recommendations for future research

6. CONCLUSIONS

Concluding remarks

Although this doctoral dissertation has several research objectives, the main goal of dissertation was to examine the perceptions of organic-agri food producers and retailers regarding the importance of collaboration and trust for their presence in the organic market. Given that one of the specific characteristics of organic agri-food supply chains in Croatia is that they are generally short (direct sales to consumers or a producer-retailer chain), and the majority of organic agri-food producers are small family farms, this research aimed to explore how collaboration and trust between organic agri-food producers and retailers affect the success of individual chain actors and contribute to the overall efficiency of the organic agri-food supply chain. To this end, this doctoral dissertation was prepared as a collection of four separate and interconnected scientific papers.

In the first and second scientific research papers, an effort was made to theoretically summarize and critically analyse existing foreign and domestic literature in the field of supply chain management, supply chain management of agricultural and food products, with a specific focus on collaboration (C), trust (T), and supply chain performance (P) of OAFSC. In line with the first research objective, these papers aimed to answer the following research question *"How is the discussion on collaboration, trust, and performance in the field of supply chain management for agricultural and food products conducted, and how have they evolved over time?"* This question was addressed by conducting a systematic literature review in the first paper and combined with a bibliometric analysis in the second paper.

In the first paper we conducted a systematic literature review (SLR) by synthesizing research spanning over two decades. It also examined the content of 137 papers concerning CTP, taking into account factors such as the analytical unit, research methodology, geographic focus, relationship type, and the inclusion of chain actors in specific supply chains (SCs). Based on this analysis, a conceptual research model (CTP model) was formulated and subsequently used as the foundation for developing a model for empirical research purposes.

The analysis of works related to the three key terms, 'collaboration', 'trust' and 'performance' (CTP) in the OAFSC, reveals an imbalance in the academic discourse from 1996 to 2020. During the initial years of research (1996-2008), there was a prevalence of papers focusing on trust. Subsequently, there was a growing number of papers emphasizing

collaboration, and in the last five years, there has been a notable surge in papers emphasizing performance.

The rise in the quantity of recent publications focusing on performance may be attributed to researchers and authors increasingly adopting holistic chain approaches. Nevertheless, the measurement of the overall chain performance is still lacking. This is partly due to researchers facing substantial challenges when evaluating the operational performance of supply chains (as indicated by Banerjee and Mishra, 2017, and Bandara *et al.*, 2017).

The examined papers focused on exploring the CTP dynamics among diverse chain actors in various OAFSC. The primary emphasis was on understanding the attitudes of OAFSC, concerning their downstream partners in the chain, particularly in the farmer-processor or farmer-retailer relationships. Furthermore, these studies identified nine typical relationship types based on the number of interconnected actors and their objectives. Research addressing CTP from the viewpoint of all involved actors, employing dyadic interfaces, was notably scarce, with dyads evolving into triads mainly during the most recent five years. Because these studies predominantly rely on the individual perceptions of the actors, their narrow focus obstructs drawing firm conclusions about the relationship intensity. This aspect can be identified as a research gap since it is crucial to extend the analysis beyond a single-actor perspective or a single SC interface to decipher the genuine indicators of relationships among actors and their influence on chain performance.

Based on the content analysis, it can be concluded that 'trust' is the most frequent focal point for researchers, irrespective of the chain structure, while 'collaboration' and 'performance' were roughly equally represented in the studies. Only three papers were identified that encompassed all three indicators (C, T, and P) and their mutual interaction (Naspetti *et al.*, 2011; Nakandala and Lau, 2019; Amentae *et al.*, 2018). When it comes to the analysis of individual constructs within the CTP framework, trust appears to be the most dominant construct, followed by collaboration and, finally, performance. This aligns with the CTP model proposed in this paper and the assertion that trust is a central component of OAFSC and an important mediator between collaboration and OAFSC performance.

To further deepen the still underdeveloped discussion on the impact of collaboration and trust on the performance of food SCs from a theoretical perspective, the second paper conducted a justifiable bibliometric analysis (BA). Bibliometric analysis employs bibliographic data and indicators to trace the developmental trajectory of scientific articles and analyse relevant papers within a specific research field. It is based on quantitative methods of multiple matches, whereas

a literature review involves content analysis of selected papers. This approach is simpler and more reliable for processing a large number of articles, enabling a more profound analysis of the relationships between articles, citations, co-citations, and keywords. Thus, it results in comprehensive information about the research area. While a traditional method like systematic literature review (SLR) may provide deeper insights into the research topic, BA can complement SLR by offering an all-encompassing presentation of all existing studies. In summary, these methods are not interchangeable but rather complementary, and their simultaneous use provides the greatest value.

The purpose of the second paper was to identify, evaluate, and structure research that concentrates on "collaboration" (C), "trust" (T), and "performance" (P) within AFSC and to reveal its intellectual foundation. The papers synthesized research published over a period of 18 years, spanning from 2003 to early 2020, with a particular focus on those studies that explored "collaboration" (C), "trust" (T), and "performance" (P) in AFSC.

Looking at it from a theoretical standpoint, it's evident that marketing-channel concepts play a prominent role in the examination of the trust construct. The predominant academic journals in this context belong to the marketing and strategic management domains. Collaboration, to some extent, is also depicted and elucidated through the lens of marketing channels and relationship management. On the other hand, performance-related papers, although fewer in number but on the rise, predominantly approach the performance aspect from a logistics, supply chain, and operational perspective, drawing insights from relevant journals. In this sphere, the theoretical basis is found in transaction cost theory, the relational view, and power dynamics.

It's noteworthy to observe that the citation network analyses reveal thematic groupings rather than methodological ones, despite the majority of the sampled papers being empirical studies. These results carry significant implications for the research community focusing on collaboration, trust, and performance (CTP) within the AFSC. While we've noted the application of market-based theories, there's a noticeable absence of supply chain management (SCM)-related theories. This paves the way for fresh opportunities in future research that should incorporate more SC thinking when investigating CTP issues.

The observation that citation network analyses reveal thematic groupings rather than methodological ones is intriguing, especially considering that the majority of the sampled papers are empirical studies. These results hold significant implications for the research community focused on collaborative, trust, and performance (CTP) within the AFSC. While

we have noted the application of market-based theories, there is a noticeable absence of theories related to SCM. This opens up new possibilities for future research that should incorporate a more Supply Chain-oriented approach when investigating CTP issues.

The discovery that citation network analyses primarily uncover thematic groupings rather than methodological ones, despite the predominance of empirical research papers in the sample, presents intriguing insights. These findings carry significant implications for the research community specializing in CTP within the OAFSC.

While we have observed the utilization of market-based theories, we've also identified a notable absence of SCM theories. This paves the way for new opportunities in future research, encouraging the incorporation of a more Supply Chain-oriented approach when investigating CTP issues.

It's noteworthy that the citation network analyses primarily highlight thematic clusters rather than methodological ones, even though a significant portion of the sample papers is empirically based. These results hold significant implications for the research community focused on CTP within the AFSC. We've been able to observe the application of market-based theories, yet we've also recognized a deficiency of SCM theories. This opens up fresh possibilities for future research, emphasizing the need for a greater integration of SCM concepts when addressing CTP issues.

Our research has certain limitations associated with the data quality, which is foundational for Bibliometric Analysis (BA). These limitations encompass the selection of the data source, specifically the utilization of WoS, which is a robust platform. However, it may not encompass all available sources, and it might contain imperfect literature references caused by author name misspellings or variations in journal labelling within the provided reference lists.

Furthermore, a review of the literature has revealed a significantly smaller number of studies that delve into the relationships within OAFSC. This highlights the need for an increased volume of research on these chains, given the growing significance of organic agricultural and food production. Despite the pressing need to enhance the efficiency of organic food distribution in Croatia, no prior studies have been identified in international or domestic literature that investigate the quality of relationships between producers and retailers in the organic food sector.

In line with the second and third research goals of the doctoral dissertation, a preliminary empirical study was conducted. This study involved semi-structured, in-depth interviews with

a sample of organic agri-food producers and retailers in Croatia. The results of this study have demonstrated variations in the perceptions of organic agri-food producers regarding the impact of collaboration and trust on overall performance. These variations depend on factors such as the duration of collaboration with retailers, the type of product, and the percentage of total sales through retailers, which signifies the intensity of collaboration. In the case of retailers, their attitudes also differ based on whether they are large mixed retailers, major specialized retailers, or small and medium-sized organic agri-food retailers. Additionally, the research results suggest that most organic agri-food producers operate with short SCs. In reality, there is no genuine SC for these producers since there are insufficient requirements for monitoring traceability, sharing common risks, developing new products, making joint investments, or pooling resources, common planning, and shared goals, among other aspects.

As for organic agri-food producers, smaller producers are less dependent on retailers because their sales through this channel are minimal, accounting for a maximum of 20%. For both categories of organic agri-food producers, small and large, there is substantial uncertainty regarding collaboration with major retail chains. Conversely, collaboration with small retailers is often informal and is built on interpersonal trust. The quality of relationships and collaboration also significantly hinges on the quality of the products offered by organic agri-food producers.

Specialized retailers set higher quality requirements, while small ones do not. Among organic agri-food producers and retailers, mostly only market information (legislation and market requirements) is shared. The retailer is not interested in information about organic production and the problems of organic producers; thus, they are poorly acquainted with the operational activities of organic agri-food producers. Dependence on retailers is conditioned by the amount of production and the type of product (fresh or processed). The retailer has more, but not full, bargaining power, especially when it comes to organic producers of processed products.

The quality of collaboration and trust is higher among larger organic agri-food producers, while among smaller producers, it thrives in situations where personal relationships and interpersonal cooperation with retailers are developed.

Furthermore, this research has concluded that important categories of relationship quality (RQ) include the following: 1. inter-organizational collaboration, 2. quality communication, 3. mutual exchange of information, 4. long-term orientation, 5. transparency

in business, 6. the influence of trust on improving business processes and reducing opportunism.

Based on the theoretical framework and the preliminary empirical research, a fundamental research model and hypotheses were developed in the fourth paper. The fourth paper serves as a continuation of the third paper and is based on empirical research conducted on a sample of 81 organic agri-food producers and 22 retailers who include organic agri-food products in their product range.

As previously mentioned, various indicators or prerequisites for quality collaboration impact trust as the central variable. This ultimately affects the success of organic agri-food producers and individual retailers, as well as the overall OAFSC. To investigate the factors discussed earlier, two primary hypotheses (H1 and H2) were formulated, which were further analysed through 11 sub hypotheses.

The results of the research conducted on a sample of organic agri-food producers confirm that there is a significant positive impact of inter-organizational collaboration, long-term orientation, and transparency on trust in the organic agri-food supply chain. However, two out of five dimensions of collaboration, namely improved communication and information exchange, do not significantly affect trust in the organic agri-food supply chain from the perspective of organic agri-food producers. Among the observed elements of collaboration, inter-organizational collaboration has the most substantial impact on trust. In conclusion, the main hypothesis H1 is partially accepted: *Collaboration positively influences trust between organic agri-food supply chain actors.*

From the perspective of OAF producers, it is confirmed that trust is an essential factor contributing to the improvement of OAFSC performance. Trust significantly influences the improvement of business processes, the ability to respond quickly to customer needs, cost reduction, gaining competitive advantages, achieving mutual benefits, and the overall efficiency of the OAFSC. Trust has the most significant impact on business processes. Therefore, the main hypothesis H2, which states that *trust between supply chain actors positively influences organic agri-food supply chain performance*, can be accepted.

The research results obtained from a sample of retailers demonstrate a positive and significant influence of collaboration on trust, and consequently, there is also a positive and statistically significant impact of trust on performance. Examining the indicators that represent these concepts, it can be concluded that retailers who hold OAF products are more inclined to perceive their supplier relationships as low-risk, with high-quality, open, and honest

communication, frequent exchange of business information, and clear and transparent terms and conditions. Consequently, they view their suppliers as fair partners in whom they have trust.

Among retailers who have higher levels of trust in their suppliers, operational efficiency, order speed, complaint resolution speed, customer satisfaction, cost reduction, competitive advantages, profit, cash flow, reduced business risk, and overall business stability and improved environmental performance are enhanced. In simpler terms, retailers with a higher level of trust in their suppliers have more successful businesses within the SC across all performance indicators.

In summary, improved collaboration between retailers and suppliers increases their trust in the supplier, which positively impacts the performance of the OAFSC. Therefore, both hypotheses, H1: *Collaboration positively influences trust between organic agri-food supply chain actors and* H2: *Trust between supply chain actors positively influences organic-agri food supply chain performance* are accepted.

Scientific contribution and research implications

Ultimately, the contribution of this doctoral thesis lies in exploring an under-researched area in both international and domestic scientific literature. This is the first study in Croatia, and even more broadly, on the impact of collaboration and trust on the performance of OAFSCs conducted in Croatia. Given that an extensive literature review has shown a limited number of empirical studies on relationships within food SCs, especially organic ones, and on relationships between small OAF producers and retailers, this research fills the mentioned research gap and significantly contributes to the SCM literature, both theoretically and practically. The research conducted for this thesis further enriches the still underdeveloped discussion on the influence of collaboration and trust on the performance of food SCs.

Another key contribution of this thesis is the fact that the importance of these practices has been examined based on a relevant sample of OAF producers (n=81) and retailers (n=22), while a small sample size has often been cited as a limiting factor in some previous studies (Kottila and Rönni, 2008; Zander and Baske, 2014; Uddin, 2017). It's worth noting that in many studies, only the perception of a single chain actor, often the producer, was examined. The conceptual model presented here is absent in previous literature on relationships in food SCs and is one of the few that connects and interacts collaboration, trust, and the performance of the food SC.

Furthermore, this research contributes to the field of studying collaboration and trust in asymmetric business dyads by including and comparing the perceptions of both sides in the relationship. These findings also offer significant practical implications. From a practical perspective, the presented model provides evidence confirming the positive impact of certain collaboration factors on the development of trust between OAF producers and retailers, and consequently, the influence of trust on the performance indicators of the OAFSC. The research results provide chain actors with evidence of the real benefits of investing in the development of collaboration and trust factors and vertical integration, both in terms of achieving operational excellence and improving the economic performance of each chain member and the entire food SC. According to Lockie and Halpin (2005) and Orsini *et al.* (2020), the literature generally lacks scientific knowledge and studies that analyze the distribution of added value throughout the entire OAFSC, making it challenging to understand the implications of collaboration in different retail channels. Therefore, this research has partially addressed this identified research gap by focusing on a specific market and a specific channel, the relationships between OAF producers and retailers in the Croatian retail market.

Research limitations and recommendations for future research

In order to provide recommendations for future research based on the conducted empirical research and position the research results within the framework of existing studies in the field of OAFSCs, it is necessary to consider the limitations of the conducted research.

The data used in this study is a snapshot that captures the perceptions of primary OAF producers and retailers and does not include the perceptions of other actors in the food SC. The analysis presented here is focused on business-to-business (B2B) relationships. Therefore, the study did not consider consumer attitudes, even though end consumers are part of the overall SC. Although information and evidence were collected through quantitative research, the sample size is relatively small due to the underdeveloped nature of the Croatian organic food market in terms of supply and demand for OAF products.

The attitudes of OAF producers may vary depending on the type of product, whether they are fresh products or processed goods. However, since there are very few processors in Croatia, this factor did not significantly impact the data generalization. Nevertheless, a further research recommendation in this area could focus on conducting studies that specifically address certain product categories.

The Croatian organic food market is primarily characterized by direct sales, local and regional short SCs, and the distribution of organic agricultural and food products to small specialized stores. This means that the OAFSC in Croatia is still underdeveloped. In fact, a proper OAFSC doesn't exist in Croatia yet, as there aren't enough requirements for monitoring traceability, sharing common risks, developing new products, joint investments, or sharing resources, common plans, and goals, among other aspects.

Addressing these limitations and conducting further research could help advance the understanding of the OAFSC in Croatia and similar markets.

Another limitation of the conducted research is the lack of publicly available data on the organic food market, especially data on specific products, and the lack of willingness from market participants, particularly retailers, to share market and other information and participate in scientific research. Overall, there is a lack of data, and very few empirical studies have been conducted on the fundamental dynamics of OAFSCs, including how they relate to the market environment and how the cooperation among chain members affects the overall success of the SC.

The conceptual model was tested on the OAFSC, and it is suggested that its validity be confirmed in other agricultural and food SCs that are not organic and are more developed in Croatia. In future research, it would be valuable to further explore the relationship between small and large business partners (especially retailers) to better explain and understand the nature and dynamics of asymmetric relationships and the consequences of asymmetry for small agricultural enterprises. From a managerial perspective, it is essential to understand how asymmetric relationships function in order to successfully manage such relationships.

Addressing these limitations and expanding research into different SC types and dimensions of asymmetry can provide a more comprehensive understanding of the dynamics and performance drivers within the food SC, benefiting both academia and the industry.

In conclusion, this research examines the impact of collaboration and trust on the performance of OAFSCs between producers and retailers in the Croatian organic product market. Thus, there are likely cultural and economic factors that influence the findings, which can be considered limitations and should be taken into account when discussing the results. If business partners are not aware of specific collaboration factors that significantly influence the trust valued by the other party, it can create a sense of mistrust and hinder the development of deeper relationships. By uncovering significant differences in trust perceptions, the study

provides a better understanding of the challenges that SC actors in dyadic relationships face, especially in cases where the relationship is marked by asymmetry.

If producers and retailers have different perceptions of the factors affecting trust development and, consequently, trust's impact on SC performance, it is possible to create a gap between the expectations and perceptions of producers and retailers, which can lead to misunderstandings and poor interorganizational collaboration in the dyadic relationship.

Addressing these perceptual differences and working towards a common understanding of the trust-building factors can be beneficial for improving SC relationships and enhancing the overall performance of the OAFSC. This research contributes to the field of SCM by shedding light on the dynamics of trust and collaboration in asymmetric relationships within the OAFSCs. It also highlights the importance of considering cultural and economic factors in SC research to understand how they may influence the perceptions and behaviors of chain actors.

In line with the research's ultimate goal, recommendations are provided to enhance collaboration and trust in the OAFSCc. This study confirmed that there is trust between producers and retailers in the OAFSC in Croatia. However, it's important to note that the Croatian organic market belongs to a relatively new market category and is still underdeveloped in terms of supply and demand. Organic food is predominantly distributed through direct distribution channels.

Croatia has significant potential for further development of OAFSC due to available land suitable for increased organic production. There is a need for better organization of the organic product market, the development of appropriate infrastructure, and increased cooperation between retailers and local producers. To strengthen collaboration between producers and organic retailers, both parties should invest more effort in this direction, as they often focus more on their individual businesses rather than creating an integrated system of mutual collaboration.

Retailers should seek to cultivate personal relationships with their OAF suppliers, thus strengthening trust. Additionally, improving communication and information exchange with suppliers, which often primarily consists of price and delivery terms, is essential. On the other hand, producers should work on further improving, particularly in product standardization, distribution, and marketing. While organic products are generally of high quality, they often lack effective promotion.

Investing in education and employing individuals for negotiation and communication with retailers should also be a priority. There is a need for increased involvement of organic

agricultural and food product producers in the retail sector, promoting the expansion of product offerings and increased availability of Croatian organic products on store shelves.

For producers, there's a need to focus on collaboration and the expansion of production since inadequate production and a weak supply of processed products are currently the most significant obstacles to product placement through retail channels and, consequently, the development of long-term collaboration. Collaboration is needed both horizontally and vertically. This entails strategic efforts to develop the organic retail market, which involves joint infrastructure development, such as storage facilities, cold storage, and processing plants, as a crucial factor for enhancing long-term cooperation, trust, and, ultimately, improving the performance of organic agri-food supply chains.

REFERENCES

1. Agamez-Arias, A.-M. and Moyano-Fuentes, J. (2017), "Intermodal transport in freight distribution: a literature review", *Transport Reviews*, Vol. 37 No. 6, pp. 782–807. doi:10.1080/01441647.2017.1297868
2. Agency for the Protection of Market Competition Report (2022), Market Overview of Retail Trade in Mixed Goods, Predominantly Food, Beverages, and Household Hygiene Products in Croatia in 2021, https://www.aztn.hr/ea/wp-content/uploads/2016/10/Prikaz-tr%C5%BEi%C5%A1ta-trgovine-na-malo-mje%C5%A1ovitom-robom-prete%C5%BEno-hranom-pi%C4%87ima-i-higijenskim-proizvodima-za-doma%C4%87instvo-u-Republici-Hrvatskoj-u-2021.-godini-1.pdf (accessed 20 June 2022)
3. Ahumada, O. and Villalobos, J. R. (2009), "Application of planning models in the agri-food supply chain: A review", *European Journal of Operational Research*, Vol. 195 No. 1, pp. 1–20. doi:10.1016/j.ejor.2008.02.014
4. Aji, J. M. M. (2016), "Exploring Farmer-Supplier Relationships in the East Java Seed Potato Market", *Agriculture and Agricultural Science Procedia*, Vol. 9, pp. 83 – 94. doi: 10.1016/j.aaspro.2016.02.130
5. Akhtar, P., Kaur, S. and Punjaisri, K. (2017), "Chain coordinators' strategic leadership and coordination effectiveness: New Zealand-Euro agri-food supply chains", *European Business Review*, Vol. 29 No. 5, pp. 515-533. https://doi.org/10.1108/EBR-08-2015-0082
6. Ali, M.H., Zhan, Y., Alam, S.S., Tse, Y.K. and Tan, K.H. (2017), "Food supply chain integrity: the need to go beyond certification", *Industrial Management & Data Systems*, Vol. 117 No. 8, pp. 1589-1611. https://doi.org/10.1108/IMDS-09-2016-0357
7. Ambler-Edwards, S., Bailey, K.S., Kiff, A., Lang, T., Lee, R., Marsden, T., Simons, D. and Tibbs, H. (2009), *Food Futures: Rethinking UK Strategy. A Chatham House Report UK*; Chatham House: London, UK, 2009; ISBN 978-1-86203-211-8.
8. Amentae, T. K., Gebresenbet, G. and Ljungberg, D. (2018), "Examining the interface between supply chain governance structure choice and supply chain performances of dairy chains in Ethiopia", *International Food and Agribusiness Management Review*, Vol. 21 No. 8, pp. 1061-1082. https://doi.org/10.22434/IFAMR2018.0001

9. Ameseder, C., Meixner, O., Haas, R., Fritz, M. and Schiefer, G. (2008), "Measurement of the importance of trust elements in agrifood chains: an application of the analytic hierarchy process", *Journal on Chain and Network Science*, Vol. 8 No. 2, pp. 153–160. doi:10.3920/jcns2008.x097
10. Anastasiadis, F. and Poole, N. (2015), "Emergent supply chains in the agrifood sector: insights from a whole chain approach", *Supply Chain Management: An International Journal*, Vol. 20 No. 4, pp. 353 – 368. http://dx.doi.org/10.1108/SCM-08-2014-0259
11. Anderson, E. and Weitz, B. (1989), "Determinants of Continuity in Conventional Industrial Channel Dyads", *Marketing Science*, Vol. 8 No. 4, pp. 310-323. https://doi.org/10.1287/mksc.8.4.310
12. Anderson, J. C. and Narus, J. A. (1990), "A model of distributor firm and manufacturer firm working partnerships", *Journal of Marketing*, Vol. 54 No. 1, pp. 42-58. doi:10.2307/1252172
13. Apaiah, R. K., Hendrix, E. M. T., Meerdink, G. and Linnemann, A. R. (2005), "Qualitative methodology for efficient food chain design", *Trends in Food Science & Technology*, Vol. 16 No. 5, pp. 204–214. doi:10.1016/j.tifs.2004.09.004
14. APPRRR - Agencija za plaćanja u poljoprivredi, ribarstvu i ruralnom razvoju, Strateški plan Zajedničke poljoprivredne politike Republike Hrvatske 2023.-2027. (ZPP 2023-2027), https://www.apprrr.hr/wp-content/uploads/2023/02/Strateski-plan-Zajednicke-poljoprivredne-politike-Republike-Hrvatske-2023.-2027..pdf (accessed 25 June 2023)
15. Aramyan, L., Ondersteijn, C., van Kooten, O. and Oude Lansink, A. (2006), "Performance indicators in agri-food production chains", Ondersteijn, C.J., Wijnands, J.H., Huirne, R.B. and van Kooten, O. (Eds), *Quantifying the Agri-food Supply Chain*, Springer, Dordrecht, pp. 47-64.
16. Aramyan, L. H., Lansink, A. G. O., Van Der Vorst, J. G. and Van Kooten, O. (2007), "Performance measurement in agri-food supply chains: a case study", *Supply Chain Management: An International Journal*, Vol. 12 No. 4, pp. 304–315. DOI 10.1108/13598540710759826
17. Aria, M. and Cuccurullo, C. (2017), "Bibliometrix: An R-tool for comprehensive science mapping analysis", *Journal of Informetrics*, Vol. 11 No. 4, pp. 959–975. https://doi.org/10.1016/j.joi.2017.08.007

18. Arzu Akyuz, G. and Erman Erkan, T. (2010), “Supply chain performance measurement: a literature review”, *International Journal of Production Research*, Vol. 48 No. 17, pp. 5137-5155. http://dx.doi.org/10.1080/00207540903089536
19. Baihaqi, I. and Sohal, A. S. (2013), “The impact of information sharing in supply chains on organisational performance: an empirical study”, *Production Planning & Control*, 24(8-9), 743-758. DOI: 10.1080/09537287.2012.666865
20. Bandara, S., Leckie, C., Lobo, A. and Hewege, C. (2017), “Power and relationship quality in supply chains: The case of the Australian organic fruit and vegetable industry”, *Asia Pacific Journal of Marketing and Logistics*, Vol. 29 No. 3, pp. 501-518. https://doi.org/10.1108/APJML-09-2016-0165
21. Banerjee, M. and Mishra, M. (2017), “Retail supply chain management practices in India: A business intelligence perspective”, *Journal of Retailing and Consumer Services*, Vol. 34, pp. 248-259. http://dx.doi.org/10.1016/j.jretconser.2015.09.009i
22. Barbosa, M. W. (2021), “Uncovering research streams on agri-food supply chain management: A bibliometric study", *Global Food Security*, 28, p. 100517. https://doi.org/10.1016/j.gfs.2021.100517
23. Barjaktarović, M., Kuzman, B., and Žarković, S. (2016), “Family holdings profitability in the organic food production in the republic of Serbia”, *Economics of Agriculture* 63(4), pp. 1309-1322. https://www.ea.bg.ac.rs/index.php/EA/article/view/162
24. Barney, J. (1991), “Firm Resources and Sustained Competitive Advantage”, *Journal of Management*, 17(1), pp. 99–120, doi:10.1177/014920639101700108.
25. Barratt, M. (2004), “Understanding the meaning of collaboration in the supply chain”, *Supply Chain Management: An International Journal*, Vol. 9 No. 1, pp. 30–42. doi:10.1108/13598540410517566
26. Batt, P. J. (2003a), “Building trust between growers and market agents”, *Supply Chain Management: An International Journal*, Vol. 8 No. 1, pp. 65-78. https://doi.org/10.1108/13598540310463378
27. Batt, P. J. (2003b), “Building Trust in the Filipino Seed Potato Industry”, *Journal of International Food & Agribusiness Marketing*, Vol. 13 No. 4, pp. 23-41. DOI: 10.1300/J047v13n04_03
28. Batt, P. J. (2003c), “Examining the performance of the supply chain for potatoes in the Red River Delta using a pluralistic approach”, *Supply Chain Management: An*

International Journal, Vol. 8 No. 5, pp. 442-454. https://doi.org/10.1108/13598540310500277

29. Batt, P. J. and Rexha, N. (2000), "Building Trust in Agribusiness Supply Chains", *Journal of International Food & Agribusiness Marketing*, Vol. 11 No. 1, pp. 1-17. DOI: 10.1300/ J047v11n01_01
30. Benton, W.C. and Maloni, M. (2005), "The influence of power driven buyer/seller relationships on supply chain satisfaction", *Journal of Operations Management*, Vol. 23 No. 1, pp. 1-22., doi:10.1016/j.jom.2004.09.002.
31. Bezuidenhout, N. C., Bodhanya, S. and Brenchley, L. (2012), "An analysis of collaboration in a sugarcane production and processing supply chain", *British Food Journal*, Vol. 114 No. 6, pp. 880-895. https://doi.org/10.1108/00070701211234390
32. Bhagat, D. and Dhar, U. R. (2014), "Relationship Dynamics in the Pineapple Supply Chain: Empirical Evidence from the Garo Hills of Meghalaya", *Global Business Review*, Vol. 15 No. 4, pp. 747-765. DOI: 10.1177/0972150914543410
33. Blundel, R.K. and Hingley, M. (2001), "Exploring growth in vertical inter-firm relationships: small-medium firms supplying multiple food retailers", *Journal of Small Business and Enterprise Development*, Vol. 8 No. 3, pp. 245-265. https://doi.org/10.1108/EUM0000000006824
34. Boniface, B., Gyau, A., Stringer, R. and Umberger, W. J. (2010), "Building producer loyalty in Malaysia's fresh milk supply chain", *Australasian Agribusiness Review*, Vol. 18, pp. 1-29. DOI: 10.22004/ag.econ.114423
35. Boniface, B. (2012), "Producer relationships segmentation in Malaysia's milk supply chains", *British Food Journal*, Vol. 114 No. 10, pp. 1501-1516. https://doi.org/10.1108/00070701211263046
36. Boniface, B., Gyau, A., and Stringer, R. (2012), "Linking price satisfaction and business performance in Malaysia's dairy industry", *Asia Pacific Journal of Marketing and Logistics*, Vol. 24 No. 2, pp. 288–304. doi:10.1108/13555851211218066
37. Booth, A., Papaioannou, D. and Sutton, A. (2012), *Systematic Approaches to a Successful Literature Review*, Sage Publications, London
38. Borodin, V., Bourtembourg, J., Hnaien, F. and Labadie, N. (2016), "Handling uncertainty in agricultural supply chain management: a state of the art", *European Journal of Operational Research*, Vol. 254 No. 2, pp. 348-359. http://dx.doi.org/10.1016/j.ejor.2016.03.057

39. Boudahri, F., Bennekrouf, M., Belkaid, F. and Zaki, S. (2012), “Reconfigurations of the Real Agri-foods Supply Chain with a Subcontractor to Accommodate Electronic Technology” In *Advances in Mechanical and Electronic Engineering*; Lecture Notes in Electrical Engineering; Jin, D., Lin, S., Eds.; Springer: Berlin/Heidelberg, Germany, 2012; Volume 177, pp. 551–556. ISBN 978-3-642-31515-2.
40. Bourlakis, M. A. and Weightman, P. W. H (2004), “Introduction to the UK Food Supply Chain”, Bourlakis, M. A. and Weightman, P. W. H. (Ed.s), *Food Supply Chain Management*, Blackwell Publishing Ltd., pp. 1-10.
41. Bourlakis, M., Maglaras, G. and Fotopoulos, C (2012), “Creating a "best value supply chain? Empirical evidence from the Greek food chain”, *The International Journal of Logistics Management*, Vol. 23 No. 3, pp. 360–382. http://dx.doi.org/10.1108/09574091211289228
42. Bourlakis, M., Maglaras, G., Gallear, D. and Fotopoulos, C. (2014), “Examining sustainability performance in the supply chain: The case of the Greek dairy sector”, *Industrial Marketing Management*, Vol. 43 No. 1, pp. 56–66. doi:10.1016/j.indmarman.2013.08.002
43. Bradach, J. L. and Eccles, R. G. (1989), “Price, authority, and trust: From ideal types to plural forms”, *Annual Review of Sociology*, Vol. 15, pp. 97–118. https://doi.org/10.1146/annurev.so.15.080189.000525
44. Bresciani, S., Ciampi, F., Meli, F. and Ferraris, A. (2021), “Using big data for co-innovation processes: Mapping the field of data-driven innovation, proposing theoretical developments and providing a research agenda", *International Journal of Information Management*, Vol. 60, 102347. https://doi.org/10.1016/j.ijinfomgt.2021.102347
45. Brooks, S., Leaver, A., Spence, M., Elliott, C. T. and Dean, M. (2017), “Pragmatic engagement in a low trust supply chain: Beef farmers’ perceptions of power, trust and agency”, *Competition & Change*, Vol. 21 No. 2, pp. 114-131. https://doi.org/10.1177/1024529417691053
46. Bukeviciute, L., Dierx, A., Ilzkovitz, F. And Roty, G. (2009), “Price transmission along the food supply chain in the European Union”, Paper prepared for presentation at the 113th EAAE Seminar *“A resilient European food industry and food chain in a challenging world”,* Chania, Crete, Greece, (No. 698-2016-47870).

47. Burgess, K., Singh, P. and Koroglu, R. (2006), "Supply chain management: A structured literature review and implications for future research", *International journal of operations & production Management*, *26*(7), pp.703-729. doi:10.1108/01443570610672202.
48. Cai, S., Jun, M. And Yang, Z. (2010), "Implementing supply chain information integration in China: the role of institutional forces and trust", *Journal of Operations Management*, Vol. 28 No. 3, pp. 257-268. doi:10.1016/j.jom.2009.11.005
49. Canavari M.; Olson K. (2007), *Organic Food: Consumers' Choices and Farmers' Opportunities*, 2007th Edition, Editors: Canavari, M., and Olson, Kent D., Springer; 2007th edition, New York, ISBN-10: 0387988068, ISBN-13: 978-0387395814
50. Canavari, M., Fritz, M., Hofstede, G. J., Matopoulos, A. and Vlachopoulou, M. (2010), "The role of trust in the transition from traditional to electronic B2B relationships in agri-food chains", *Computers and electronics in agriculture*, Vol. 70 No. 2, pp. 321-327. doi:10.1016/j.compag.2009.08.014
51. Capaldo, A. and Giannoccaro, I. (2015), "Interdependence and network-level trust in supply chain networks: A computational study", *Industrial Marketing Management*, *44*, pp. 180–195. doi:10.1016/j.indmarman.2014.10.001.
52. Chan, F. T. S. (2003), "Performance Measurement in a Supply Chain", *The International Journal of Advanced Manufacturing Technology*, Vol. 21, pp. 534-548. https://doi.org/10.1007/s001700300063
53. Chandrasekaran, N. and Raghuram, G. (2014), *Agribusiness Supply Chain Management*, Taylor & Francis Group, Boca Raton, ISBN 9781138627260
54. Chaudhary, S., Dhir, A., Ferraris, A., & Bertoldi, B. (2021), "Trust and reputation in family businesses: A systematic literature review of past achievements and future promises", *Journal of Business Research*, 137, pp. 143–161. doi:10.1016/j.jbusres.2021.07.052
55. Chen, I.J., Paulraj, A. and Lado, A.A. (2004), "Strategic purchasing, supply management, and firm performance", *Journal of Operations Management*, Vol 22 No. 5, pp. 505–523. doi:10.1016/j.jom.2004.06.002
56. Chiffoleau, Y. and Dourian, T. (2020), Sustainable Food Supply Chains: Is Shortening the Answer? A Literature Review for a Research and Innovation Agenda". *Sustainability*, *12*(23), p. 9831, doi:10.3390/su12239831.

57. Chopra, S., Laux, C., Schmidt, E. and Rajan, P. (2017), "Perception of Performance Indicators in an Agri-Food Supply Chain: A Case Study of India's Public Distribution System", *International Journal on Food System Dynamics*, International Center for Management, Communication, and Research, Vol. 8 No. 2, pp. 130-145, DOI:http://dx.doi.org/10.18461/ijfsd.v8i2.824
58. Chopra, S. and Meindl, P. (2004), *Supply chain management: strategy, planning and operations. Second edition*. New Jersey: Pearson Education, ISBN-10: 0-13-274395-7
59. Clarke, N. (2006), "The relationships between network commitment, its antecedents and network performance", *Management Decision*, Vol. 44 No. 9, pp. 1183-1205. https://doi.org/10.1108/00251740610707677
60. Corbin, J. and Strauss, A. (2008), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed.; Sage: Thousand Oaks, CA, USA; doi:10.4135/9781452230153.
61. Coronado, J.J.A., Bijman, J., Omta, O. and Lansink, A.O., (2010), "Relationship characteristics and performance in fresh produce supply chains: the case of the Mexican avocado industry", *Journal on Chain and Network Science*, *10*(1), pp.1-15.
62. Cranfield, J., Henson, S. and Holliday, J. (2010), "The motives, benefits, and problems of conversion to organic production", *Agriculture and human values*, 27, pp. 291-306. doi:10.1007/s10460-009-9222-9.
63. Crosby, L.A., Evans, K.R. and Cowles, D. (1990), "Relationship Quality in Services Selling: An Interpersonal Influence Perspective", *Journal of Marketing*, *54*(3), pp. 68–81. https://doi.org/10.1177/002224299005400306
64. Cunha Callado, A. A. and Jack, L. (2017), "Relations between usage patterns of performance indicators and the role of individual firms in fresh fruit agri-food supply chains", *Journal of Applied Accounting Research*, Vol. 18 No. 3, pp. 375-398. https://doi.org/10.1108/JAAR-04-2016-0037
65. Dabić, M., Maley, J., Dana, L.-P., Novak, I., Pellegrini, M. M. and Caputo, A. (2019), "Pathways of SME internationalization: a bibliometric and systematic review", *Small Business Economics*, Vol. 55 No. 3, pp. 705-725. doi:10.1007/s11187-019-00181-6
66. Dani, S. (2015), *Food Supply Chain Management and Logistics: From Farm to Fork*, Kogan Page Publishers, London, UK, ISBN 978-0-7494-7364-8.
67. Dania, W. A. P., Xing, K. and Amer, Y. (2016), "Collaboration and sustainable agri-food supply chain: a literature review", in. Jamari, J., Handogo, R and Suryani, E. (Ed.s)

MATEC Web of Conferences, Vol. 58, The 3rd Bali International Seminar on Science & Technology (BISSTECH 2015), Bali, Indonesia, 02004, DOI: 10.1051/matecconf/2016802004

68. Dania, W. A. P., Xing, K. and Amer, Y. (2018), "Collaboration behavioural factors for sustainable agri-food supply chains: A systematic review", *Journal of Cleaner Production*, Vol. 186 pp. 851–864, https://doi.org/10.1016/j.jclepro.2018.03.148
69. Dapiran, G.P. and Hogarth-Scott, S. (2003), "Are co-operation and trust being confused with power? An analysis of food retailing in Australia and the UK", *International Journal of Retail & Distribution Management*, Vol. 31 No. 5, pp. 256-267. https://doi.org/10.1108/09590550310472424
70. Darroch, M. A. and Mushayanyama, T. (2006), "Improving working relationships for smallholder farmers in formal organic crop supply chains: Evidence from KwaZulu-Natal, South Africa", *Agrekon*, Vol. 45 No. 3, pp. 339–360. DOI: 10.1080/03031853.2006.9523751
71. De Almeida, M. M. K., Marins, F. A. S., Salgado, A. M. P., Santos, F. C. A. and da Silva, S. L. (2017), "The importance of trust and collaboration between companies to mitigate the bullwhip effect in supply chain management", *Acta Scientiarum. Technology*, Vol. 39 No. 2, pp. 201-210. Doi: 10.4025/actascitechnol.v39i2.29648
72. De Búrca, S. and Voss, C. (2005), "Supply chain relationship quality, the competitive environment and performance", *International Journal of Production Research, 43*(16), pp.3303-3320. doi:10.1080/00207540500095894.
73. De Oliveira, M.L., Santos, J.L.S., Vieira Becker, G. and Bent Hansen, P. (2016), "A bibliometric analysis of international literature on collaboration in supply chain", *BASE – Revista de Administração e Contabilidade da UnisinoS,* Vol. 13 No. 1, pp. 32-52. doi: 10.4013/base.2016.131.03
74. De Toni, D., Eberle, L., Larentis, F. and Milan, G. S. (2018), "Antecedents of perceived value and repurchase intention of organic food", *Journal of Food Products Marketing*, *24*(4), pp. 456-475. https://doi.org/10.1080/10454446.2017.1314231
75. Delbufalo, E. (2012), "Outcomes of inter-organizational trust in supply chain relationships: a systematic literature review and a meta-analysis of the empirical evidence", *Supply Chain Management: An International Journal*, Vol. 17 No. 4, pp. 377–402. doi:10.1108/13598541211246549

76. Den Ouden, M., Dijkhuizen, A. A., Huirne, R. B. M., and Zuurbier, P. J. P. (1996), "Vertical cooperation in agricultural production-marketing chains, with special reference to product differentiation in pork", *Agribusiness*, Vol. 12 No. 3, pp. 277–290. doi:10.1002/(sici)1520-6297(199605/06)12:3<277::aid-agr7>3.0.co;2-y
77. Denver, S. and Christensen, B.T. (2007), "Organic consumption in three European countries", 3rd QLIF Congress, Hohenheim, Germany, March, pp. 20-23., Retrived from: https://orgprints.org/id/eprint/10279/1/denver-christensen-2007-organic_consumption.pdf
78. Denyer, D. and Tranfield, D. (2009), "Producing a systematic review", Buchanan, D. A. and Bryman, A. (Ed.s), *The Sage handbook of organizational research methods*, Sage Publications Ltd., London, pp. 671–689.
79. Dibb, S., Ferrell, O.C., Pride, W.M. and Simkin, L. (1997), *Marketing Concepts and Strategies*, 3rd ed.; Houghton Mifflin: Boston, MA, USA, 1997; ISBN 1-900961-27-X.
80. Dimitri, C.L. and Dettmann, R. (2012), "Organic food consumers: what do we really know about them?", *British Food Journal*, *114*(8), pp.1157-1183., https://doi.org/10.1108/00070701211252101
81. Ding, M. J., Jie, F., Parton, K. A. and Matanda, M. J. (2014), "Relationships between quality of information sharing and supply chain food quality in the Australian beef processing industry", *The International Journal of Logistics Management*, Vol. 25 No. 1, pp. 85-108. https://doi.org/10.1108/IJLM-07-2012-0057
82. Dinu, M. D. (2016), "Supply chain performance within agri food sector", *Economics of Agriculture*, Vol. 63 No. 3, pp. 919-928. DOI: 10.5937/ekoPolj1603919D
83. Doernberg, A., Zasada, I., Bruszewska, K., Skoczowski, B. and Piorr, A. (2016), "Potentials and Limitations of Regional Organic Food Supply: A Qualitative Analysis of Two Food Chain Types in the Berlin Metropolitan Region", *Sustainability*, *8*(11), p.1125, doi:10.3390/su8111125.
84. Doney, P. M., and Cannon, J.P. (1997), "An Examination of the Nature of Trust in Buyer-Seller Relationships", *Journal of Marketing*, Vol. 61 No. 2, pp. 35-51. doi:10.1177/002224299706100203
85. Dovleac, L., (2016), "An overview on the supply chain for European organic food market, Bulletin of the Transilvania University of Braşov", *9*(58), pp. 325-330., http://webbut2.unitbv.ro/BU2016/Series%20V/BULETIN%20I/33_Dovleac.pdf

86. Dreyer, H.C., Strandhagen, J.O., Hvolby, H.-H., Romsdal A. and Alfnes, E. (2016), "Supply chain strategies for speciality foods: a Norwegian case study", *Production Planning & Control*, Vol. 27 No. 11, pp. 878-893. DOI: 10.1080/09537287.2016.1156779
87. Duffy, R. and Fearne, A. (2004a), "Buyer-Supplier Relationships: An Investigation of Moderating Factors on the Development of Partnership Characteristics and Performance", *International Food and Agribusiness Management Review*, Vol. 7 No. 2, pp. 1-25.
88. Duffy, R. and Fearne, A. (2004b), "The Impact of Supply Chain Partnerships on Supplier Performance", *The International Journal of Logistics Management*, Vol. 15 No. 1, pp. 57-72. DOI: 10.1108/09574090410700239
89. Durach, C.F., Kembro, J. and Wieland, A. (2017), "A new paradigm for systematic literature reviews in supply chain management", *Journal of Supply Chain Management*, Vol. 53 No. 4, pp. 67–85. https://doi.org/10.1111/jscm.12145
90. Dwyer, F.R., Schurr, P.H. and Sejo, O. (1987), "Developing Buyer-Seller Relationships", *Journal of Marketing*, Vol. 51 No. 2, pp. 11-27. https://doi.org/10.1177/002224298705100202
91. Dyer, J.H. and Singh, H. (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage", *Academy of Management Review*, Vol. 23 No. 4, pp. 660-679. doi:10.5465/AMR.1998.1255632
92. EC Europa (2021), "Action plan for organic production in the EU", available at: https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organic-action-plan_hr#documents (accessed 20 February 2023)
93. Eksoz, C., Mansouri, S. A., Bourlakis, M. and Önkal, D. (2019), "Judgmental adjustments through supply integration for strategic partnerships in food chains", *Omega*, Vol. 87 (September), pp. 20-33. https://doi.org/10.1016/j.omega.2018.11.007
94. Elkington, J. (1997), *Cannibals with Forks. The Triple Bottom Line of 21st Century Business*; Capstone Publishing: Oxford, UK, 1997; ISBN 978-1-900961-27-1.
95. Essoussi, H.L. and Zahaf, M. (2008), "Decision making process of community organic food consumers: an exploratory study", *Journal of Consumer Marketing*, 25(2), pp. 95-104., doi:10.1108/07363760810858837.
96. European Commission High Level Forum for a Better Functioning Food Supply Chain. Report, Brussels, 15 October 2014. Available online:

https://ec.europa.eu/commission/presscorner/detail/en/IP_14_1139 (accessed on 10 March 2021).

97. European Green Deal (EC) https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_hr (accessed on 14 april 2023).
98. Fattahi, F., Nookabadi, A.S. and Kadivar, M. (2013), "A model for measuring the performance of the meat supply chain", *British Food Journal*, Vol. 115 No. 8, pp. 1090-1111. https://doi.org/10.1108/BFJ-09-2011-0217
99. Fearne, A. (1998), "The evolution of partnerships in the meat supply chain: Insights from the British beef industry", *Supply Chain Management*, Vol. 3 No. 4, pp. 214-231. DOI: 10.1108/13598549810244296
100. Fearne, A. and Hughes, D. (1999), "Success Factors in the Fresh Produce Supply Chain: Insights from the UK", *Supply Chain Management: An International Journal*, Vol. 4 No 3, pp. 120-131. https://doi.org/10.1108/13598549910279567
101. Fearne, A., Duffy, R. and Hornibrook, S. (2005), "Justice in UK supermarket buyer-supplier relationships: an empirical analysis", *International Journal of Retail & Distribution Management*, Vol. 33 No. 8, pp. 570–582. doi:10.1108/09590550510608377
102. Fearne, A., Barrow, S. and Schulenberg, D. (2006), "Implanting the benefits of buyer-supplier collaboration in the soft fruit sector", *Supply Chain Management: An International Journal*, Vol. 11 No. 1, pp. 3-5. http://dx.doi.org/10.1108/13598540610642402
103. Feng, Y., Zhu, Q. and Lai, K.-H. (2017), "Corporate social responsibility for supply chain management: A literature review and bibliometric analysis", *Journal of Cleaner Production*, Vol. 158 (August), pp. 296–307. doi:10.1016/j.jclepro.2017.05.018
104. FiBL. The World of Organic Agriculture, Statistic & Emerging Trends 2020. Available online: https://www.arc2020.eu/wpcontent/uploads/2020/03/organic-world-2020.pdf (accessed on 5 March 2021).
105. FiBL. The World of Organic Agriculture, Statistic & Emerging Trends 2022. Available online: https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022.pdf (accessed on 25 March 2023)

106. Fischer, C. (2013), “Trust and communication in European agri-food chains”, *Supply Chain Management: An International Journal*, Vol. 18 No. 2, pp. 208-218. https://doi.org/10.1108/13598541311318836

107. Fischer, C., Gonzalez, M. A., Henchion, M. M. and Leat, P. M. (2006), “Factors influencing trust-supporting mechanisms in European agri-food chains”, Paper prepared for presentation at the 99th EAAE Seminar *"Trust and Risk in Business Networks"*, Bonn, Germany, February 8-10, (No. 737-2016-50888).

108. Fischer, C., Gonzalez, M.A., Henchion, M. and Leat, P. (2007), “Trust and economic relationships in selected European agrifood chains”, *Acta Agriculturae Scandinavica, Section C, Food Economics*, Vol. 4 No. 1, pp. 40-48. http://dx.doi.org/10.1080/16507540701192543

109. Fischer, C., Hartmann, M., Reynolds, N., Leat, P., Revoredo-Giha, C., Henchion, M., Albisue, L. M. and Gracia, A. (2009), “Factors influencing contractual choice and sustainable relationships in European agri-food supply chains”, *European Review of Agricultural Economics*, Vol. 36 No. 4, pp. 541–569.

110. Fischer, C. and Hartmann, M. (2010), “Introduction and Overview: Analysing Interorganizational Relationships in Agri-food Chains”, In *Agri-Food Chain Relationships*; Fischer, C., Hartmann, M., Eds.; CAB International: Oxford, UK, pp. 11–21. ISBN 978-1-84593-642-6.

111. Fleșeriu, C., Cosma, S. A. and Bocăneț, V. (2020), “Values and planned behaviour of the Romanian organic food consumer”, *Sustainability*, *12*(5), p. 1722. https://doi.org/10.3390/su12051722

112. Formentini, M. and Romano, P. (2016), “Towards supply chain collaboration in B2B pricing”, *International Journal of Operations & Production Management*, Vol. 36 No. 7, pp. 734-756. https://doi.org/10.1108/IJOPM-03-2015-0124

113. Fredriksson, A. and Liljestrand, K. (2015), “Capturing food logistics: a literature review and research agenda”, *International Journal of Logistics Research and Applications*, Vol. 18 No. 1, pp. 16-34. http://dx.doi.org/10.1080/13675567.2014.944887

114. Fritz, M. and Fischer, C. (2007), “The Role of Trust in European Food Chains: Theory and Empirical Findings”, *International Food and Agribusiness Management Review*, Vol 10 No 2, pp. 1-24. DOI: 10.22004/ag.econ.8185

115. Fritz, M. and Schiefer, G. (2008), "Food chain management for sustainable food system development: a European research agenda", *Agribusiness,* Vol 24 No. 4, pp. 440-452., doi:10.1002/agr.20172.

116. Gagalyuk, T., Hanf, J.H. and Hingley, M. (2013), "Firm and whole chain success: Network management in the Ukrainian food industry", *Journal on Chain and Network Science*, Vol. 13 No. 1, pp. 47-70. DOI: 10.3920/JCNS2013.x226

117. Gajdić, D., Petljak, K. and Mesić, Ž. (2018), "An exploration of distribution channels: Challenges and opportunities for organic food producers in Croatia", Економика пољопривреде, 65(4), pp.1461-1482. doi:10.5937/ekopolj1804461g.

118. Gajdić, D. (2019), "Definition and characteristics of short agri-food supply chains for products", *Ekonomska misao i praksa,* Vol. 28 No. 1, pp.381-408.

119. Gajdić, D., Mesić, Ž. and Petljak, K. (2021), Preliminary Research about Producers' Perceptions of Relationship Quality with Retailers in the Supply Chain of Organic Food Products in Croatia, *Sustainability*, *13*(24), pp. 1-41 https://doi.org/10.3390/su132413673

120. Galipoglu, E., Kotzab, H., Teller, C., Yumurtaci Hüseyinoglu, I.Ö. and Pöppelbuß, J. (2018), "Omnichannel retailing research – state of the art and intellectual foundation", *International Journal of Physical Distribution & Logistics Management,* Vol. 48 No. 4, pp. 365-390. https://doi.org/10.1108/IJPDLM-10-2016-0292

121. Ganesan, S. (1994), "Determinants of long-term orientation in buyer-seller relationships", *Journal of marketing,* Vol. 58 No. 2, pp. 1-19. https://doi.org/10.1177%2F002224299405800201

122. Gellynck, X., Molnár, A. and Aramyan, L. (2008), "Supply chain performance measurement: the case of the traditional food sector in the EU", Journal on Chain and Network Science, Vol. 8 No. 1, pp. 47–58. doi:10.3920/jcns2008.x088

123. Gellynck, X., Kühne, B. and Weaver, R. D. (2011), "Relationship quality and innovation capacity of chains: the case of the traditional food sector in the EU", *International Journal on Food System Dynamics*, Vol. 2 No. 1, pp. 1-22. doi:10.18461/ijfsd.v2i1.211.

124. Geyskens, I., Steenkamp, J. B. E. and Kumar, N. (1998), "Generalizations about trust in marketing channel relationships using meta-analysis", *International Journal of Research in Marketing*, Vol. 15 No. 3, pp. 223-248.

125. Geyskens, I., Steenkamp, J. B. E., Scheer, L. K. and Kumar, N. (1996). The effects of trust and interdependence on relationship commitment: A trans-Atlantic study. *International Journal of research in marketing*, *13*(4), 303-317. doi:10.1016/s0167-8116(96)00006-7.

126. Geyskens, I. and Steenkamp, J. B. E. (2000). Economic and social satisfaction: measurement and relevance to marketing channel relationships. *Journal of retailing*, *76*(1), 11-32. doi:10.1016/s0022-4359(99)00021-4.

127. Ghosh, A. and Fedorowicz, J. (2008), "The role of trust in supply chain governance", *Business Process Management Journal*, Vol. 14 No. 4, pp. 453-470. DOI 10.1108/14637150810888019

128. Gil, J.M., Gracia, A. and Sanchez, M., (2000), "Market segmentation and willingness to pay for organic products in Spain", *The International Food and Agribusiness Management Review*, *3*(2), pp.207-226.

129. Giovannetti, E., Bertolini, P. and Russo, M. (2021), "Rights, Commons, and Social Capital: The Role of Cooperation in an Italian Agri-Food Supply Chain", *Sustainability*, *13*(21), p. 12161, doi:10.3390/su132112161.

130. Glavee-Geo, R. and Engelseth, P. (2018), "Seafood export as a relationship-oriented supply network", *British Food Journal*, Vol. 120 No. 4, pp. 914-929. https://doi.org/10.1108/BFJ-04-2017-0249

131. Gorton, M., Angell, R., Dries, L., Urutyan, V., Jackson, E. and White, J. (2015), "Power, buyer trustworthiness and supplier performance: Evidence from the Armenian dairy sector", *Industrial Marketing Management*, Vol. 50 (October), pp. 69-77. https://doi.org/10.1016/j.indmarman.2015.05.024

132. Götze, F., Mann, S., Ferjani, A., Kohler, A. and Heckelei, T. (2016), "Explaining market shares of organic food: evidence from Swiss household data", *British Food Journal*,*118*(4), pp. 931-945, https://doi.org/10.1108/BFJ-09-2015-0318

133. Grahovac, P. (2005), *Ekonomika Poljoprivrede*; Golden Marketing-Tehnička Knjiga: Zagreb, Croatia, 2005; ISBN 953-212-247-8.

134. Green, J. M., Draper, A., Dowler, E. A., Fele, G., Hagenhoff, V., Rusanen, M. and Rusanen, T. (2005), "Public understanding of food risks in four European countries: a qualitative study", *European Journal of Public Health*, Vol. 15 No. 5, pp. 523–527. doi:10.1093/eurpub/cki016

135. Guanqi, Z. and Husnain, M. (2022), “Assessing the role of organic food supply chain traceability on food safety and consumer wellbeing: A mediated-moderation investigation”, *Frontiers in Psychology*, *13*, p. 1073376. https://doi.org/10.3389/fpsyg.2022.1073376

136. Guersola, M., Lima, E.P.D. and Steiner, M.T.A. (2018), “Supply chain performance measurement: a systematic literature review”, *International Journal of Logistics Systems and Management*, Vol. 31 No. 1, pp. 109-131. https://doi.org/10.1504/IJLSM.2018.094193

137. Gugić J., Grgić I., Dorbić B., Šuste M., Džepina M. and Zrakić, M. (2017), “Pregled stanja i perspektiva razvoja ekološke poljoprivrede u Republici Hrvatskoj”, *Glasnik zaštite bilja*, 3/2017, pp. 20-30. https://hrcak.srce.hr/file/269064

138. Gunasekaran, A., Patel, C. and Tirtiroglu, E. (2001), “Performance measures and metrics in a supply chain environment”, *International Journal of Operations & Production Management*, Vol. 21 No. 1/2, pp. 71-87. https://doi.org/10.1108/01443570110358468

139. Gunasekaran, A., Rai, B. K. and Griffin, M. (2011), “Resilience and competitiveness of small and medium size enterprises: an empirical research”, *International Journal of Production Research*, Vol. 49 No. 18, pp. 5489-5509. doi:10.1080/00207543.2011.563831

140. Gundala, R. R. and Singh, A. (2021), “What motivates consumers to buy organic foods? Results of an empirical study in the United States”, *Plos one*, *16*(9), p. e0257288. https://doi.org/10.1371/journal.pone.0257288

141. Gyau, A. and Spiller, A. (2007a), “Determinants of trust in the international fresh produce business between Ghana and Europe”, *International Business Management*, Vol. 1 No. 4, pp. 104-111. http://dx.doi.org/10.3923/ibm.2007.104.111

142. Gyau, A. and Spiller, A. (2007b), “The role of organizational culture in modeling buyer-seller relationships in the fresh fruit and vegetable trade between Ghana and Europe”, *African Journal of Business Management*, Vol. 1 No. 8, pp. 218-229.

143. Gyau, A. and Spiller, A. (2008), “The impact of supply chain governance structures on the inter-firm relationship performance in agribusiness”, *Agricultural Economics*, Vol. 54 No. 4, pp. 176-185, 10.17221/292-AGRICECON

144. Gyau, A. and Spiller, A. (2009), "An integrated model of buyer-seller relationship performance in agribusiness: the partial least squares approach", *Journal on Chain and Network Science*, Vol. 9 No. 1, pp. 25-41.

145. Hakansson, H., Johanson, J. and Wootz, B. (1977), "Influence tactics in buyer-seller relationships", *Industrial Marketing Management*, Vol. 5 (October), pp. 319-32.

146. Hallén, L., Johanson, J. and Seyed-Mohamed, N. (1991), "Interfirm Adaptation in Business Relationships", *Journal of Marketing*, Vol. 55 No. 2, pp. 29-37. https://doi.org/10.2307/1252235

147. Hamm, U. and Gronefeld, F. (2004), *The European Market for Organic Food: Revised and Updated Analysis*; School of Management and Business, University of Wales: Aberystwyth, UK, 2004; ISBN 0954327947.

148. Hamzaoui-Essoussi, L., Sirieix, L. and Zahaf, M. (2013), "Trust orientations in the organic food distribution channels: A comparative study of the Canadian and French markets", *Journal of Retailing and Consumer Services*, Vol. 20 No. 3, pp. 292-301. https://doi.org/10.1016/j.jretconser.2013.02.002

149. Han, J., Omta, S. W. F., and Trienekens, J. H. (2007), "The joint impact of Supply Chain Integration and Qualilty Management on the performance of Pork processing firms in China", *International Food and Agribusiness Management Review*, Vol. 10 No. 2, pp. 67-98.

150. Han, S. L., Wilson, D. T. and Dant, S. P. (1993), "Buyer-supplier relationships today", *Industrial marketing management*, *22*(4), pp. 331-338. https://doi.org/10.1016/0019-8501(93)90029-7

151. Hansen, M.H., Morrow Jr., and Batista, J.C. (2002), "The impact of trust on cooperative membership retention, performance, and satisfaction: an exploratory study", *International Food and Agribusiness Management Review*, Vol. 5 No. 4, pp. 41-59. 10.1016/S1096-7508(02)00069-1

152. Henseler, J., Ringle, C. M. And Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the academy of marketing science*, *43*, pp. 115-135. https://doi.org/10.1007/s11747-014-0403-8

153. Hardman, P., Darroch, M. and Ortmann, G. (2002), "Improving cooperation to make the South African fresh apple export value chain more competitive", *Journal on*

Chain and Network Science, Vol. 2 No. 1, pp. 61–72. https://doi.org/10.3920/JCNS2002.x018

154. Harper, G.C. and Makatouni, A. (2002), "Consumer perception of organic food production and farm animal welfare", *British Food Journal*, *104*(3/4/5), pp. 287-299, https://doi.org/10.1108/00070700210425723

155. Hartmann, M., Klink, J. and Simons, J. (2015), "Cause related marketing in the German retail sector: Exploring the role of consumers' trust", *Food Policy*, 52, pp. 108–114. doi:10.1016/j.foodpol.2014.06.012

156. Hashem, S., Migliore, G., Schifani, G., Schimmenti, E. and Padel, S. (2018), "Motives for buying local, organic food through English box schemes", *British Food Journal*, *120*(7), pp.1600-1614, https://doi.org/10.1108/BFJ-08-2017-0426

157. Hennig-Thurau, T., Gwinner, K.P. and Gremler, D.D. (2002), *"*Understanding Relationship Marketing Outcomes: An Integration of Rela-tional Benefits and Relationship Quality", *Journal of service research, 4*(3), pp.230-247. doi:10.1177/1094670502004003006.

158. Higgins, A., Thorburn, P., Archer, A. and Jakku, E. (2007), "Opportunities for value chain research in sugar industries", *Agricultural Systems*, Vol. 94 No. 3, pp. 611–621. doi:10.1016/j.agsy.2007.02.011

159. Hingley, M. (2004), "Relationship Development in the UK Fresh Produce Supply Chain", *Journal of Marketing Channels*, Vol. 12 No. 1, pp. 27-50. DOI: 10.1300/J049v12n01_03

160. Hingley, M. K. (2005a), "Power Imbalance in UK Agri-Food Supply Channels: Learning to Live with the Supermarkets?", *Journal of Marketing Management*, Vol. 21 Nos. 1-2, pp. 63–88. doi:10.1362/0267257053166758

161. Hingley, M. K. (2005b), "Power imbalanced relationships: cases from UK fresh food supply", *International Journal of Retail & Distribution Management*, Vol. 33 No. 8, pp. 551-569. DOI 10.1108/09590550510608368

162. Hingley, M. K. (2005c), "Power to all our friends? Living with imbalance in supplier–retailer relationships", *Industrial Marketing Management*, Vol. 34 No. 8, pp. 848-858. doi:10.1016/j.indmarman.2005.03.008

163. Hingley, M., Lindgreen, A. and Casswell, B. (2006), "Supplier-Retailer Relationships in the UK Fresh Produce Supply Chain", Journal of International Food & Agribusiness Marketing, Vol. 18 Nos. 1-2, pp. 49-86. DOI: 10.1300/J047v18n01_04

164. Hingley, M.K., Sodano, V., and Lindgreen, A. (2008), "Differentiation strategies in vertical channels: a case study from the market for fresh produce", *British Food Journal*, Vol. 110, No. 1, pp. 42-61. (ISSN 0007-070X)

165. Hisjam, M. and Sutopo, W. (2017), "Researches in agri-food supply chain: A bibliometric study", in. Sutopo, W., Jauhari,W. A., Nor, F. M. and Kurniawan D. (Ed.s), *AIP Conference Proceedings,* Vol. 1902, 020038, 3rd International Materials, Industrial, and Manufacturing Engineering Conference (MIMEC2017), AIP Publishing, https://doi.org/10.1063/1.5010655

166. Hobbs, J.E. (1996), "A transaction cost approach to supply chain management", *Supply Chain Management: An International Journal, 1*(2), pp.15-27., doi:10.1108/13598549610155260.

167. Hofstede, G. J., Fritz, M., Canavari, M. and Oosterkamp, E. (2010), "Towards a cross-cultural typology of trust in B2B food trade", *British Food Journal*, Vol. 112 No. 7, pp. 671-687. https://doi.org/10.1108/00070701011058226

168. Hogarth-Scott, S. (1999), "Retailer-supplier partnerships: hostages to fortune or the way forward for the millennium?", *British Food Journal*, Vol. 101 No. 9, pp. 668 – 682. http://dx.doi.org/10.1108/00070709910288865

169. Jacob-John, J. (2018), "Adherence to responsibility in organic dry food supply chains", *European Business Review*, Vol. 30 No. 1, pp. 26-37. https://doi.org/10.1108/EBR-01-2016-0025

170. Jamaluddin, F. and Saibani, N. (2021), "Systematic Literature Review of Supply Chain Relationship Approaches amongst Business-to-Business Partners", *Sustainability, 13*, p.11935, doi:10.3390/su132111935.

171. Ji, C., de Felipe, I., Briz, J. and Trienekens, J. H., (2012), "An Empirical Study on Governance Structure Choices in China´s Pork Supply Chain", *International Food and Agribusiness Management Review*, Volume 15 No. 2, pp. 121-152.

172. Jie, F., Parton, K. A. and Cox, R. J. (2013), "Linking supply chain practices to competitive advantage", *British Food Journal*, Vol. 115 No. 7, pp. 1003-1024. http://dx.doi.org/10.1108/BFJ-10-2010-0181

173. Jie, F. and Gengatharen, D. (2019), "Australian food retail supply chain analysis", *Business Process Management Journal*, Vol. 25 No. 2, pp. 271-287. https://doi.org/10.1108/BPMJ-03-2017-0065

174. Johnson, D. and Grayson, K. (1999), "Sources and dimensions of trust in service relationships", Swartz, T.A. and Iaccobucci, D. (Eds.), *Service Marketing and Management,* Sage, Thousand Oaks, CA

175. Jones, S. L., Fawcett, S. E., Fawcett, A. M. and Wallin, C. (2010), "Benchmarking trust signals in supply chain alliances: moving toward a robust measure of trust", *Benchmarking: An International Journal*, Vol. 17 No. 5, pp. 705–727. doi:10.1108/14635771011076452

176. Jorge-Vázquez, J., Chivite-Cebolla, M. and Salinas-Ramos, F. (2021), "The Digitalization of the European Agri-Food Cooperative Sector. Determining Factors to Embrace Information and Communication Technologies", *Agriculture, 11*, p. 514, doi:10.3390/agriculture11060514.

177. Kache, F. and Seuring, S. (2014), "Linking collaboration and integration to risk and performance in supply chains via a review of literature reviews", *Supply Chain Management: An International Journal*, Vol. 19 Nos. 5/6, pp. 664-682. https://doi.org/10.1108/SCM-12-2013-0478

178. Kähkönen, A. and Tenkanen, M. (2010), "The impact of power on information sharing in the Finnish food industry", *British Food Journal*, Vol. 112 No. 8, pp. 821-835. https://doi.org/10.1108/00070701011067442

179. Kamalahmadi, M. And Parast, M. M. (2016), "A review of the literature on the principles of enterprise and supply chain resilience: major findings and directions for future research", *International Journal of Production Economics*, Vol. 171, pp. 116–133. http://dx.doi.org/10.1016/j.ijpe.2015.10.023

180. Kampstra, R.P., Ashayeri, J. and Gattorna, J. (2006), "Realities of Supply Chain Collaboration", *The International Journal of Logistics Management,* Vol. 17 No. 3, pp. 312-330. DOI 10.1108/09574090610717509

181. Kataike, J., Aramyan, L.H., Schmidt, O., Molnár, A. and Gellynck, X. (2019), "Measuring chain performance beyond supplier–buyer relationships in agri-food chains", *Supply Chain Management: An International Journal*, Vol. 24 No. 4, pp. 484-497. https://doi.org/10.1108/SCM-03-2018-0097

182. Keivan Zokaei, A. and Simons, D.W. (2006), "Value chain analysis in consumer focus improvement: A case study of the UK red meat industry", *The International Journal of Logistics Management*, Vol. 17 No. 2, pp. 141-162. https://doi.org/10.1108/09574090610689934

183. Kelly, S., Wagner, B. and Ramsay, J. (2018), “Opportunism in buyer–supplier exchange: a critical examination of the concept and its implications for theory and practice”, *Production Planning & Control*, Vol. 29, No. 12, pp. 992-1009. https://doi.org/10.1080/09537287.2018.1495772

184. Knight, J., Holdsworth, D. and Mather, D. (2007), “Determinants of trust in imported food products: perceptions of European gatekeepers”, *British Food Journal*, Vol. 109 No. 10, pp. 792–804. doi:10.1108/00070700710821331

185. Knoke, D. and Yang, S. (2008), *Social Network Analysis*, 2nd Edition, Series: Quantitative Applications in the Social Sciences, Sage Publications, Print ISBN: 9781412927499 | Online ISBN: 9781412985864 https://dx.doi.org/10.4135/9781412985864

186. Koreleska, E. (2017), “Production and market of ecological product in Poland”, Proceedings of the 8th International Scientific Conference Rural Development Kaunas, Lithuania, pp. 1119-1123. http://doi.org/10.15544/RD.2017.043

187. Kosior, K. (2018), “Digital transformation in the agri-food sector–opportunities and challenges”, *Roczniki (Annals), 2018(1230-2019-3703)* pp. 98–104, doi:105604/01.3001.0011.8122.

188. Kottila, M. R. (2009), "Knowledge sharing in organic food supply chains", *Journal on Chain and Network Science*, Vol. 9 No. 2, pp. 133–144. doi:10.3920/jcns2009.x168

189. Kottila, M.-R. and Rönni, P. (2008), “Collaboration and trust in two organic food chains”, *British Food Journal*, Vol. 110 Nos. 4/5, pp. 376-394., https://doi.org/10.1108/00070700810868915

190. Kotler, P. and Keller, L.K. (2016), *Marketing Management*. Pearson Education. Fifteenth Edition

191. Kotzab, H., Darkow, I. L., Bäumler, I. and Georgi, C. (2019), “Coordination, cooperation and collaboration in logistics and supply chains: a bibliometric analysis”, *Production*, Vol. 29, pp. e20180088. https://doi.org/10.1590/0103- 6513.20180088

192. Kranjac, M., Vapa-Tankosić, J. and Knežević, M. (2017), “Profile of organic food consumers”, *Economics of Agriculture, 64*(2), pp. 497-514. DOI:10.5937/ekoPolj1702497K,

193. Kubala, J., Grodzińska-Jurczak, M., Cichoń, M. and Nieszporek, K. (2008), “Motivations for organic farming among farmers from Malopolska Province, Poland”,

International Journal of Environment and Sustainable Development, *7*(3), pp. 345-361., DOI:10.1504/IJESD.2008.021904

194. Kühne, B., Gellynck, X. and Weaver, R. D. (2013), "The influence of relationship quality on the innovation capacity in traditional food chains", *Supply Chain Management: An International Journal*, Vol. 18 No. 1, pp. 52-65. https://doi.org/10.1108/13598541311293177

195. Laeequddin, M., Sahay, B. S., Sahay, V. and Abdul Waheed, K. (2010), "Measuring trust in supply chain partners' relationships", *Measuring Business Excellence*, Vol. 14 No. 3, pp. 53–69. doi:10.1108/13683041011074218

196. Lambert, D.M. (2008), *Supply Chain Management—Processes, Partnerships, Performance*, 3rd ed Supply Chain Management Institute, Sarasota, Florida, 2008; pp. 431. ISBN 978-0-9759949-3-1

197. Lambert, D.M. and Cooper, M.C. (2000), "Issues in supply chain management", *Industrial marketing management*, *29*(1), pp.65-83. doi:10.1016/s0019-8501(99)00113-3.

198. Leat, P. and Revoredo-Giha, C. (2008), "Building collaborative agri-food supply chains", *British Food Journal*, Vol. 110 Nos. 4/5 pp. 395 – 411. http://dx.doi.org/10.1108/00070700810868924

199. Lee, D.Y. (2001), "Power, conflict and satisfaction in IJV supplier—Chinese distributor channels", *Journal of Business Research*, *52*(2), pp.149-160. doi:10.1016/s0148-2963(99)00067-3.

200. Lees, N. J. and Nuthall, P. (2015), "Case study analysis on supplier commitment to added value agri-food supply chains in New Zealand", *Agricultural and Food Economics*, Vol. 3 No. 1, pp. 1-16. doi:10.1186/s40100-014-0024-z

201. León-Bravo, V., Caniato, F., Caridi, M. and Johnsen, T. (2017), "Collaboration for Sustainability in the Food Supply Chain: A Multi-Stage Study in Italy", *Sustainability*, *9*, p. 1253, doi:10.3390/su9071253.

202. Li, S. and Lin, B. (2006), "Accessing information sharing and information quality in supply chain management", *Decision support systems*, *42*(3), pp.1641-1656.

203. Lindgreen, A. (2001), "A framework for studying relationship marketing dyads", *Qualitative Market Research*, Vol. 4 No. 2, pp. 75-88. https://doi.org/10.1108/13522750110388572

204. Lindgreen, A. (2003), “Trust as a valuable strategic variable in the food industry: Different types of trust and their implementation”, *British Food Journal*, Vol. 105 No. 6, pp. 310-327. https://doi.org/10.1108/00070700310481694

205. Lindgreen, A., Palmer, R. and Trienekens, J. (2005), “Relationships within the supply chain: a case study”, *Journal on Chain and Network Science*, Vol. 5, No. 2, pp. 85-99. doi:10.3920/jcns2005.x058.

206. Lobo, A., Leckie, C. and Li, C. (2013), “The impact of guanxi, xinyong and buyer collaboration on the loyalty and financial performance of vegetable farmers in China”, *Asia Pacific Journal of Marketing and Logistics*, Vol. 25 No. 5, pp. 745-764. https://doi.org/10.1108/APJML-01-2013-0018

207. Lu, H., Trienekens, J.H. and Omta, S.W.F. (2006), “Does guanxi matter for vegetable supply chain in China? A case study approach”, *In International Agri-Food Chains and Networks: Management and Organizations*; Bijman, J., Ed.; Wageningen Academic: Wageningen, The Netherlands, pp. 31-47. ISBN 978-90-76998-95-4.

208. Lu, H., Feng, S., Trienekens, J. H. and Omta, S. W. F. (2008), “Performance in vegetable supply chains: the role of Guanxi networks and buyer–seller relationships”, *Agribusiness: An International Journal*, Vol. 24 No. 2, pp. 253-274. DOI: 10.1002/agr.20158

209. Lu, H., Feng, S., Trienekens, J.H. and Omta, S.W.F. (2012), “Network strength, transaction-specific investments, inter-personal trust, and relationship satisfaction in Chinese agri-food SMEs”, *China Agricultural Economic Review*, Vol. 4 No. 3, pp. 363-378. https://doi.org/10.1108/17561371211263374

210. Luhmann, N. (2000), “Familiarity, confidence, trust: Problems and alternatives”, *Trust: Making and breaking cooperative relations*, Vol. 6 No. 1, pp. 94-107.

211. Luo, J., Ji, C., Qiu, C. and Jia, F. (2018), “Agri-Food Supply Chain Management: Bibliometric and Content Analyses”, *Sustainability*, MDPI, Vol. 10 No. 5, pp. 1-22. doi:10.3390/su10051573

212. Luo, J., Han, H., Jia, F. and Don, H. (2020), "Agricultural Co-operatives in the Western World: A Bibliometric Analysis", *Journal of Cleaner Production*, Vol. 273, pp. 1-13. 122945 https://doi.org/10.1016/j.jclepro.2020.122945

213. Madichie, N. O. and Yamoah, F. A. (2016), "Revisiting the European Horsemeat Scandal: The Role of Power Asymmetry in the Food Supply Chain Crisis", *Thunderbird International Business Review*, Vol. 59 No. 6, pp. 663–675. doi:10.1002/tie.21841

214. Maglaras, G., Bourlakis, M. and Fotopoulos, C. (2015), "Power-imbalanced relationships in the dyadic food chain: An empirical investigation of retailers' commercial practices with suppliers", *Industrial Marketing Management*, Vol. 48 (July), pp. 187-201. https://doi.org/10.1016/j.indmarman.2015.03.014

215. Mahajan, R., Garg, S. and Sharma, P.B. (2017), "Processed food supply chain: a framework for literature review", *Journal of Advances in Management Research*, Vol. 14 No. 1, pp. 91-109. https://doi.org/10.1108/JAMR-05-2016-0035

216. Malagueño, R., Gölgeci, I. and Fearne, A. (2019), "Customer categorization, relational justice and SME performance in supermarket supply chains", *Supply Chain Management: An International Journal*, Vol. 24 No. 3, pp. 417-429. https://doi.org/10.1108/SCM-06-2018-0237

217. Maloni, M. and Benton, W. C. (2000), "Power influence in the supply chain", *Journal of Business Logistics*, Vol. 21 No. 1, pp. 49-73.

218. Marsden, T. (1998), "New rural territories: regulating the differentiated rural spaces", *Journal of rural studies*, Vol. 14 No. 1, pp. 107-117. https://doi.org/10.1016/S0743-0167(97)00041-7

219. Marsden, T., Banks, J. and Bristow, G. (2000), "Food Supply Chain Approaches: Exploring their Role in Rural Development", *Sociologia Ruralis*, Vol. 40 No. 4, pp. 424–438. doi:10.1111/1467-9523.00158

220. Martínez-Azúa, B.C., López-Salazar, P. and Sama-Berrocal, C. (2020), "Determining Factors of Innovative Performance: Case Studies in Extremaduran Agri-Food Companies", *Sustainability*, *12*, p. 9098, doi:10.3390/su12219098.

221. Martins, F. M., Trienekens, J. and Omta, O. (2019), "Implications of horizontal and vertical relationships on farmers performance in the Brazilian pork industry", *Livestock Science*, Vol. 228 (October), pp. 161-169. https://doi.org/10.1016/j.livsci.2019.08.013

222. Mason, K., Doyle, P. and Wong, V. (2006), "Market orientation and quasi-integration: Adding value through relationships", *Industrial marketing management*, *35*(2), pp. 140-155. http://dx.doi.org/10.1016/j.indmarman.2005.01.005

223. Masuku, M.B. (2003), "The role of contractual relationships in the performance of supply chains. A case of the sugar industry in Swaziland", PhD Thesis, Department of Agricultural Economics, Extension and Rural Development, University of Pretoria.

224. Masuku, M. B., Kirsten, J. F., Van Rooyen, C. J. and Perret, S. (2003), "Contractual relationships between small-holder sugarcane growers and millers in the sugar industry supply chain in Swaziland", *Agrekon*, Vol. 42 No. 3, pp. 183–199. doi:10.1080/03031853.2003.9523619

225. Masuku, M.B. and Kirsten, J.F. (2004), "The role of trust in the performance of supply chains: A dyad analysis of smallholder farmers and processing firms in the sugar industry in Swaziland", *Agrekon*, Vol. 43 No 2, pp. 147-161. DOI: 10.1080/03031853.2004.9523642

226. Masuku, M. B., Kirsten, J. F. and Owen, R. (2007), "A Conceptual Analysis of Relational Contracts in Agribusiness Supply Chains: The Case of the Sugar Industry in Swaziland", *Agrekon*, Vol. 46 No. 1, pp. 72–93. DOI: 10.1080/03031853.2007.9523762

227. Mathu, K. and Phetla, S. (2018), "Supply chain collaboration and integration enhance the response of fast-moving consumer goods manufacturers and retailers to customer's requirements", *South African Journal of Business Management*, Vol. 49 No. 1, pp. 1-8. a192. https://doi.org/ 10.4102/sajbm.v49i1.192

228. Matopoulos, A., Vlachopoulou, M., Manthou, V. and Manos, B. (2007), "A conceptual framework for supply chain collaboration: empirical evidence from the agri-food industry", *Supply Chain Management: An International Journal*, Vol. 12 No. 3, pp. 177–186. https://doi.org/10.1108/13598540710742491

229. Mayer, R. C., Davis, J. H. and Schoorman, F. D. (1995), "An integrative model of organizational trust", *Academy of management review*, Vol. 20 No. 3, pp. 709-734.

230. Mazurek-Kusiak, A.; Sawicki, B.; Kobyłka, A. (2021), "Contemporary Challenges to the Organic Farming: A Polish and Hungarian Case Study", *Sustainability, 13*, p. 8005, doi:10.3390/su13148005.

231. McGivern, Y. (2009), *The practice of market research: an introduction* (3rd Edition) Pearson Education Canada, ISBN-10: 0273717073; ISBN-13: 978-0273717072

232. Mena, C., Humphries, A. and Wilding, R. (2009), "A comparison of inter-and intra-organizational relationships", *International Journal of Physical Distribution & Logistics Management*, Vol. 39 No. 9, pp. 762-784. DOI 10.1108/09600030911008193

233. Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. and Zacharia, Z. G. (2001), "Defining supply chain management", *Journal of Business Logistics*, Vol. 22 No. 2, pp. 1–25. https://doi.org/10.1002/j.2158-1592.2001.tb00001.x

234. Mentzer, J.T., Stank, T.P. and Esper, T.L. (2008), "Supply chain management and its relationship to logistics, marketing, production, and operations management, *Journal of business logistics*, *29*(1), pp.31-46. doi:10.1002/j.2158-1592.2008.tb00067.x.

235. Mesic, Ž., Molnár, A. and Cerjak, M. (2018), "Assessment of traditional food supply chain performance using triadic approach: the role of relationships quality", *Supply Chain Management*, Vol. 23 No. 5, pp. 396-411. https://doi.org/10.1108/SCM-10-2017-0336

236. Mikkola, M. (2008), "Coordinative structures and development of food supply chains", *British Food Journal*, Vol. 110 No. 2, pp. 189–205. doi:10.1108/00070700810849907

237. Ministry of Agriculture of the Republic of Croatia. Available online: https://poljoprivreda.gov.hr/statistika-360/360 (accessed on day April 2021).

238. Mishra, P.K. and Shekhar, B.R. (2013), "Consumer behaviour, customer satisfaction vis-a-vis brand performance: an empirical study of dairy food supply chain in India", *International Journal of Indian Culture and Business Management*, Vol. 7 No. 3, pp. 399-412.

239. Moazzam, M., Akhtar, P., Garnevska, E., and Marr, Norman E. (2018), "Measuring agri-food supply chain performance and risk through a new analytical framework: a case study of New Zealand dairy", *Production Planning and Control*, Vol. 29 No. 15, pp. 1258-1274. https://doi.org/10.1080/09537287.2018.1522847

240. Mohr, J. and Spekman, R. (1994), "Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques", *Strategic Management Journal*, Vol. 15, No. 2 pp. 135-152. http://dx.doi.org/10.1002/smj.4250150205

241. Molnár, A. and Gellynck, X. (2009), "Performance Imbalances In The Chain: Eu Traditional Food Sector", APSTRACT: Applied Studies in Agribusiness and Commerce, *AGRIMBA*, Vol. 4 No. 3-4, pp. 1-5

242. Molnár, A., Gellynck, X. and Weaver, R.D. (2010), "Chain member perception of chain performance: the role of relationship quality", *Journal on Chain and Network Science*, Vol. 10 No. 1, pp. 27-49. DOI: 10.3920/JCNS2010.x103

243. Montero, M., Schmalenberg, A. C., Quirós, O. and Doluschitz, R. (2018), "Identification of supply chain performance indicators: case study of costa rican coffee production", *Universal Journal of Industrial and Business Management*, Vol. 6 No. 1, pp. 1-10.

244. Moorman, C., Deshpande, R. and Zaltman, G. (1993), "Factors affecting trust in market research relationships", *Journal of Marketing*, Vol. 57 No. 1, pp. 81-101. doi:10.2307/1252059

245. Moorman, C. and Rust, R. T. (1999), "The Role of Marketing", *Journal of Marketing*, Vol. 63 (4_suppl1), pp. 180–197. doi:10.1177/00222429990634s117

246. Morgan, R.M. and Hunt, S.D. (1994), "The Commitment-Trust Theory of Relationship Marketing", *Journal of Marketing*, Vol. 58 No. 3, pp. 20-38. doi:10.2307/1252308.

247. Mozas-Moral, A., Fernández-Uclés, D., Bernal-Jurado, E. and Medina-Viruel, M.J. (2016), "Web quality as a determining factor in the online retailing of organic products in Spain", *New Medit: Mediterranean Journal of Economics, Agriculture and Environment= Revue Méditerranéenne d'Economie Agriculture et Environment, 15*(2), p.28.

248. Msaddak, M., Ben-Nasr, J., Zaibet, L. and Fridhi, M. (2017), "Social networks for the sustain ability of the dairy sector: The role of cooperatives", *Livestock Research for Rural Development*, Vol. 29 No. 2, pp. 1-11. www.lrrd.org/lrrd29/2/msad29028.html

249. Msaddak, M., Ben-Nasr, J. And Zaibet, L. (2021), "Dynamics of Trust and Cooperation in the Dairy Value Chain: A Game Simulation Approach", *Journal of International Food & Agribusiness Marketing*, *33*(4), pp. 353-373. doi:10.1080/08974438.2020.1805387

250. Mutonyi, S., Beukel, K., Gyau, A., Hjortsø, C. N. and Griffith, C. (2016), "Price satisfaction and producer loyalty: the role of mediators in business to business relationships in Kenyan mango supply chain", *British Food Journal*, Vol. 118 No. 5, pp. 1067-1084. http://dx.doi.org/10.1108/BFJ-09-2015-0319

251. Nakandala, D. and Lau, H.C.W. (2019), "Innovative adoption of hybrid supply chain strategies in urban local fresh food supply chain", *Supply Chain Management: An International Journal*, Vol. 24 No. 2, pp. 241-255. https://doi.org/10.1108/SCM-09-2017-0287

252. Naspetti, S., Lampkin, N., Nicolas, P., Stolze, M. and Zanoli, R. (2011), "Organic Supply Chain Collaboration: A Case Study in Eight EU Countries", *Journal of Food Products Marketing*, Vol. 17 No. 2, pp. 141-162. DOI: 10.1080/10454446.2011.548733

253. Nitschke, T. and O'Keefe, M. (1997), "Managing the linkage with primary producers: experiences in the Australian grain industry", *Supply Chain Management*, Vol. 2 No. 1, pp. 4-6. https://doi.org/10.1108/13598549710156295

254. Nyaga, G. N., Whipple, J. M. and Lynch, D. F. (2010), "Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ?", *Journal of Operations Management*, Vol. 28 No. 2, pp. 101-114. doi:10.1016/j.jom.2009.07.005

255. Odongo, W., Dora, M., Molnár, A., Ongeng, D. and Gellynck, X. (2016), "Performance perceptions among food supply chain members", *British Food Journal*, Vol. 118 No. 7, pp. 1783–1799. http://dx.doi.org/10.1108/BFJ-10-2015-0357

256. Odongo, W., Dora, M. K., Molnár, A., Ongeng, D. and Gellynck, X. (2017), "Role of power in supply chain performance: evidence from agribusiness SMEs in Uganda", *Journal of Agribusiness in Developing and Emerging Economies*, Vol. 7 No. 3, pp. 339-354. https://doi.org/10.1108/JADEE-09-2016-0066

257. Orsini, S., Padel, S., Gambelli, D., Lernoud, J., Sanders, J., Solfanelli, F., Stolze, M., Willer, H. and Zanoli, R. (2020), "Beyond "mainstream" and "alternative" in organic food supply chains: Empirical Examples of Added Value Distribution from Eight European Countries", *British Food Journal*, *122*(3), pp. 798–812, doi:10.1108/bfj-07-2019-0508.

258. Ortmann, G.F. and King, R.P. (2010), "Research on agri-food supply chains in Southern Africa involving small-scale farmers: Current status and future possibilities", *Agrekon*, Vol. 49 No. 4, pp. 397-417. DOI: 10.1080/03031853.2010.526428

259. Padel, S. and Foster, C. (2005), “Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food”, *British Food Journal*, *107*(8), pp. 606-625. https://doi.org/10.1108/00070700510611002

260. Padel, S. and Midmore, P. (2005), “The development of the European market for organic products: Insights from a Delphi study”, *British Food Journal*, *107*(8), pp. 626–646. doi:10.1108/00070700510611011.

261. Palacios-Argüello, L., Gondran, N., Nouira, I., Girard, M. A. and Gonzalez-Feliu, J. (2020), “Which is the relationship between the product’s environmental criteria and the product demand? Evidence from the French food sector”, *Journal of Cleaner Production*, Vol. 244, p. 118588. doi: https:// doi.org/10.1016/j.jclepro.2019.118588

262. Palmer, A. and Bejou, D. (1994), “Buyer-seller relationships: A conceptual model and empirical investigation”, *Journal of Marketing Management*, Vol. 10 No. 6, pp. 495-512. http://dx.doi.org/10.1080/0267257X.1994.9964296

263. Panayides, P. M. and Lun, Y. V. (2009), “The impact of trust on innovativeness and supply chain performance”, *International Journal of Production Economics*, Vol. 122 No.1, pp. 35-46. doi:10.1016/j.ijpe.2008.12.025

264. Patterson, P.G., Johnson, L.W. and Spreng, L.W. (1997), “Modelling the Determinants of Customer Satisfaction for Business-to-Business Professional Services”, *Journal of the academy of marketing science, 25,* pp.4-17.

265. Patton, M.Q. (1987), *How to Use Qualitative Methods in Evaluation; Program Evaluation*, 2nd ed.; Sage Publications: London, UK, 1987; ISBN 978-0-8039-3129-9.

266. Paul, J. and Criado, A. R. (2020), “The art of writing literature review: What do we know and what do we need to know? ”, *International Business Review*, Vol. 29 No. 4, p. 101717. https://doi.org/10.1016/j.ibusrev.2020.101717

267. Petljak, K. (2011), “Pregled razvoja i obilježja ekološke poljoprivrede u Republici Hrvatskoj”, *Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic*, *24*(2), pp. 382-395.

268. Petljak, K., (2013), “Distribution channels of organic food in the Republic of Croatia”, *Business Excellence*, *7*(1), Zagreb, Croatia pp.73-97.

269. Petljak, K., Zulauf, K., Štulec, I., Seuring, S. and Wagner, R. (2018), “Green supply chain management in food retailing: survey-based evidence in Croatia”, *Supply Chain Management: An International Journal*, *23*(1), pp. 1-15. https://doi.org/10.1108/SCM-04-2017-0133

270. Pondel, H. (2016), "Evolution trends in organic food production in Poland", *Journal of Research and Applications in Agricultural Engineering*, *61*(4), pp. 132-135. https://tech-rol.eu/images/Archiwum_X/2019/05/2016_4_HP.pdf

271. Prakash, G. (2018), "Review of the food processing supply chain literature: a UK, India bilateral context", J*ournal of Advances in Management Research*, Vol. 15 No. 4, pp. 457-479. https://doi.org/10.1108/JAMR-12-2017-0116

272. Puska, A., Stević, Ž. and Šadić, S. (2019), "Impact of sharing information with supplier and buyer on the organizational performance of food companies in Bosnia and Herzegovina", *Časopis za ekonomiju i tržišne komunikacije*, Vol. 9 No. 1, pp. 33-52. DOI: 10.7251/EMC1901

273. Puspitawati, E., Guyau, A., Stringer, R. and Umberger, W. J. (2011), "Determinants of Trust in the Indonesian Potato Industry: A Comparison Between Groups of Potato Farmers", *Journal of Agribusiness*, Agricultural Economics Association of Georgia, Vol. 29 No 1. DOI: 10.22004/ag.econ.260160

274. Ramirez, M. J., Roman, I. E., Ramos, E. and Patrucco, A. S. (2020), "The value of supply chain integration in the Latin American agri-food industry: trust, commitment and performance outcomes", *The International Journal of Logistics Management*, Vol. 32 No. 1, pp. 284-304. DOI 10.1108/IJLM-02-2020-0097

275. Raj Sinha, P., Whitman, L.E. and Malzahn, D. (2004), "Methodology to mitigate supplier risk in an aerospace supply chain", *Supply Chain Management*: *an international journal*, Vol. 9 No. 2, pp. 154-168. https://doi.org/10.1108/13598540410527051

276. Razavi, S.M., Abdi, M., Amirnequiee, S. and Ghasemi, R. "The impact of supply chain relationship quality and cooperative strategy on strategic purchasing", *Journal of Logistics Management, 5*(1), pp.6-15. doi:10.5923/j.logistics.20160501.02.

277. Rebs, T., Brandenburg, M. and Seuring, S. (2018), "System dynamics modeling for sustainable supply chain management: A literature review and systems thinking approach", *Journal of Cleaner Production*, Vol. 208 (January), pp. 1-33. doi: 10.1016/j.jclepro.2018.10.100

278. Renko, S. andBošnjak, K. (2009), "Aktualno stanje i perspektive budućeg razvoja tržišta ekološke hrane u Hrvatskoj", Ekonomski pregled, 60(7-8), pp. 369-395.

279. Renting, H., Marsden, T.K. and Banks, J. (2003) “Understanding alternative food networks: exploring the role of short food supply chains in rural development”, *Environment and Planning*, 35, pp. 393-411., DOI:10.1068/a3510

280. Reynolds, N., Fischer, C. and Hartmann, M. (2009), “Determinants of sustainable business relationships in selected German agri-food chains”, *British Food Journal*, Vol. 111 No. 8, pp. 776-793. https://doi.org/10.1108/00070700910980919

281. Ringle, C. M., Da Silva, D. and de Souza Bido, D. (2014), “Modelagem de equações estruturais com utilização do SmartPLS”. *REMark-Revista Brasileira de Marketing*, 13(2), 56-73. DOI:10.5585/bjm.v13i2.2717

282. Rodale, M. and Schlosser, E. (2011), *Organic Manifesto: How Organic Farming Can Heal Our Planet, Feed the World, and Keep Us Safe*; Rodale Inc.: New York, NY, USA, 2011; ISBN 978-1-60961-136-1.

283. Rong-Da Liang, (2016), “Predicting intentions to purchase organic food: the moderating effects of organic food prices”, *British Food Journal*, *118*(1), pp.183-199., https://doi.org/10.1108/

284. Rota, C., Pugliese, P., Hashem, S. and Zanasi, C. (2018), “Assessing the level of collaboration in the Egyptian organic and fair trade cotton chain”, *Journal of Cleaner Production*, Vol. 170 (January), pp. 1665-1676. doi: 10.1016/ j.jclepro.2016.10.011.

285. Rousseau, D. M., Manning, J. and Denyer, D. (2008), “Evidence in Management and Organizational Science: Assembling the Field's Full Weight of Scientific Knowledge through Syntheses”, Advanced Institute of Management Research Paper No. 067, August, Available at: SSRN: https://ssrn.com/abstract=1309606 or http://dx.doi.org/10.2139/ssrn.1309606

286. Routroy, S. and Behera, A. (2017), “Agriculture supply chain: A systematic review of literature and implications for future research”, *Journal of Agribusiness in Developing and Emerging Economies*, Vol. 7 No. 3, pp. 275-302. https://doi.org/10.1108/JADEE-06-2016-0039

287. Saha, V., Mani, V. and Goyal, P. (2020), “Emerging trends in the literature of value co-creation: a bibliometric analysis”, *Benchmarking: An International Journal*, Vol. 27 No. 3, pp. 981–1002., doi:10.1108/bij-07-2019-0342

288. Sahara, S. and Gyau, A. (2014), “Contractual arrangements and commitment in the Indonesian supermarket channel”, *British Food Journal*, Vol. 116 No. 5, pp. 765–779. doi:10.1108/bfj-03-2012-0070

289. Sahay, B. S. and Maini, A. (2002), “Supply chain: a shift from transactional to collaborative partnership”, *Decision*, Vol. 29 No. 2, pp. 67-88.

290. Sahay, B.S. (2003), “Understanding trust in supply chain relationships”, *Industrial Management & Data Systems*, Vol. 103 No. 8, pp. 553-563. https://doi.org/10.1108/02635570310497602

291. Sako, M. And Helper, S. (1998), “Determinants of trust in supplier relations: Evidence from the automotive industry in Japan and the United States”, *Journal of Economic Behavior & Organization*, Vol. 34 No. 3, pp. 387-417.

292. Salin, V. (1998), “Information Technology in Agri-Food Supply Chains”, *International Food and Agribusiness Management Review*, Vol. 1 No. 3, pp. 329-334. https://doi.org/10.1016/S1096-7508(99)80003-2

293. Sanders, J., Gambelli, D., Lernoud, J., Orsini, S., Padel, S., Stolze, M., Willer, H. and Zanoli, R. (2016), “Distribution of the added European Commission, Final Report”, EK, Available online: http://uni-sz.bg/truni11/wp-content/uploads/biblioteka/file/TUNI10042479.pdf

294. Schulze, B. and Spiller, A. (2006), “Determinants of Trust between Buyers and Suppliers in Agribusiness: Empirical Evidence from the German Pork Sector”, Paper prepared for presentation at the 99th EAAE Seminar ‘*Trust and Risk in Business Networks’,* January 8-10, Bonn, Germany, available at: https://ideas.repec.org/p/ags/eaae99/7719.html

295. Schulze, B., Wocken, C. and Spiller, A. (2006), “Relationship quality in agri-food chains: Supplier management in the German pork and dairy sector”, *Journal on Chain and Network Science*, Vol. 6 No 1, pp. 55-68. https://doi.org/10.3920/JCNS2006.x065

296. Schulze-Ehlers, B., Steffen, N., Busch, G. and Spiller, A. (2014), “Supply chain orientation in SMEs as an attitudinal construct”, *Supply Chain Management: An International Journal*, Vol. 19 No. 4, pp. 395- 412. http://dx.doi.org/10.1108/SCM-07-2013-0241

297. Selnes, F. (1998), “Antecedents and consequences of trust and satisfaction in buyer-seller relationships”, *European journal of marketing, 32(3/4),* pp.305-322. doi:10.1108/03090569810204580.

298. Seuring, S. and Gold, S. (2012), "Conducting content-analysis based literature reviews in supply chain management", *Supply Chain Management*, Vol. 17 No. 5, pp. 544-555. https://doi.org/10.1108/13598541211258609

299. Seuring, S. and Müller, M. (2008), "From a literature review to a conceptual framework for sustainable supply chain management" *Journal of cleaner production, 16(15),* pp. 1699–1710, doi:10.1016/j.jclepro.2008.04.020.

300. Seuring, S. and Gold, S. (2012), "Conducting content-analysis based literature reviews in supply chain management", *Supply Chain Management*, Vol. 17 No. 5, pp. 544-555. https://doi.org/10.1108/13598541211258609

301. Seuring, S., Yawar, S. A., Land, A., Khalid, R. U. and Sauer, P. C. (2020), "The application of theory in literature reviews–illustrated with examples from supply chain management", *International Journal of Operations & Production Management*, Vol. 41 No. 1, pp. 1-20. https://doi.org/10.1108/IJOPM-04-2020-0247

302. Shaw, Hughner, R., McDonagh, P., Prothero, A., Shultz II, C.J. and Stanton, J. (2007) "Who Are Organic Food Consumers? A Compilation and Review of Why People Purchase Organic Food", *Journal of Consumer Behaviour*, 6, pp. 1–17., DOI: 10.1002/cb.210

303. Siddh, M.M., Soni, G. and Jain, R. (2015), "Perishable food supply chain quality (PFSCQ): A structured review and implications for future research", *Journal of Advances in Management Research*, Vol. 12 No. 3, pp. 292-313. https://doi.org/10.1108/JAMR-01-2015-0002

304. Siddh, M.M., Soni, G., Jain, R., Sharma, M.K. and Yadav, V. (2017), "Agri-fresh food supply chain quality (AFSCQ): a literature review", *Industrial Management & Data Systems*, Vol. 117 No. 9, pp. 2015-2044. https://doi.org/10.1108/IMDS-10-2016-0427

305. Siemieniuch, C.E., Waddell, F.N. and Sinclair, M.A. (1999), "The Role of 'Partnership' In Supply Chain Management for Fast-Moving Consumer Goods: a Case Study", *International Journal of Logistics Research and Applications*, Vol. 2 No. 1, pp. 87-101. DOI: 10.1080/13675569908901574

306. Sillanpää, I. (2015), "Empirical study of measuring supply chain performance", *Benchmarking: An International Journal*, Vol. 22 No. 2, pp. 290–308. http://dx.doi.org/10.1108/BIJ-01-2013-0009

307. Simons, D., Francis, M., Bourlakis, M. and Fearne, A. (2003), "Identifying the determinants of value in the U.K. red meat industry: A value chain analysis approach", *Journal on Chain and Network Science*, Vol. 3 No. 2, pp. 109-121.

308. Simpson, D. F. and Power, D. J. (2005), "Use the supply relationship to develop lean and green suppliers", *Supply chain management: An international Journal*, Vol. 10 No. 1, pp. 60 – 68. http://dx.doi.org/10.1108/13598540510578388

309. Singh, R.K. (2014), "Assessing Effectiveness of Coordination in Food Supply Chain: A Framework", *International Journal of Information Systems and Supply Chain Management*, Vol. 7 No. 3, pp. 104-117. DOI: 10.4018/ijisscm.2014070105

310. Singh, R., Sandhu, H. S., Metri, B. A. and Kaur, R. (2013), "Modeling supply chain performance: a structural equation approach", *International Journal of Information Systems and Supply Chain Management (IJISSCM)*, Vol. 6 No. 4, pp. 18-41. DOI: 10.4018/ijisscm.2013100102

311. Singh, H., Garg, R. K. and Sachdeva, A. (2018), "Supply chain collaboration: A state-of-the-art literature review", *Uncertain Supply Chain Management*, Vol. 6, pp. 149–180. doi:10.5267/j.uscm.2017.8.002

312. Somogyi, S. and Gyau, A. (2009), "The impact of price satisfaction on supplier relationship performance", *In Proceedings of the 2009 Australian and New Zealand Marketing Academy Conference* (ANZMAC 2009) (pp. 1-9). Promaco Conventions.

313. Sondhi, N. and Vani, V. (2007), "An empirical analysis of the organic retail market in the NCR" *Global Business Review*, *8*(2), pp. 283-302. http://dx.doi.org/10.1177/097215090700800207

314. Stone, J. and Rahimifard, S. (2018), "Resilience in agri-food supply chains: a critical analysis of the literature and synthesis of a novel framework", *Supply Chain Management: An International Journal*, Vol. 23 No. 3, pp. 207–238. https://doi.org/10.1108/SCM-06-2017-0201

315. Stuart, I., Verville, J. and Taskin, Z. (2012), "Trust in buyer-supplier relationships: Supplier competency, interpersonal relationships and performance outcomes", *Journal of Enterprise Information Management,* Vol. 25 No. 4, pp. 392-412. https://doi.org/10.1108/17410391211245856

316. Sufiyan M., Haleem A., Khan S. and Khan M.I. (2019), "Analysing Attributes of Food Supply Chain Management: A Comparative Study", Shanker K., Shankar R.

and Sindhwani R. (Ed.s) *Advances in Industrial and Production Engineering*, Springer, pp. 515-523, https://doi.org/10.1007/978-981-13-6412-9_50

317. Sun, Y., Liu, Z. and Yang, H. (2018), "How Does Suppliers' Fairness Affect the Relationship Quality of Agricultural Product Supply Chains?", *Journal of Food Quality*, Vol. 5, pp. 1-15. DOI: 10.1155/2018/9313068

318. Susanty, A., Bakhtiar, A., Jie, F. and Muthi, M. (2017), "The empirical model of trust, loyalty, and business performance of the dairy milk supply chain", *British Food Journal*, Vol. 119 No. 12, pp. 1-26. DOI 10.1108/BFJ-10-2016-0462

319. Suvanto, H. (2012), "Constructing a typology of trust in asymmetrical food business relationships", *British Food Journal*, Vol. 114 No. 7, pp. 926-943. https://doi.org/10.1108/00070701211241536

320. Šugar, T., Brščić, K. and Zaborski, T.K. (2020), "Mišljenje proizvođača ekoloških prehrambenih proizvoda o mogućnostima razvoja ekološke poljoprivrede u Hrvatskoj", *Zbornik Veleučilišta Rijeci, 8*, pp. 455–469, doi:10.31784/zvr.8.1.4.

321. Taylor, D.H. and Fearne, A. (2009), "Demand management in fresh food value chains: a framework for analysis and improvement", *Supply Chain Management*, Vol. 14 No. 5, pp. 379-392. https://doi.org/10.1108/13598540910980297

322. Tejpal, G., Garg, R. K. and Sachdeva, A. (2013), "Trust among supply chain partners: a review", *Measuring Business Excellence*, Vol. 17 No. 1, pp. 51–71. doi:10.1108/13683041311311365

323. Thorsøe, M.H. (2015), "Maintaining Trust and Credibility in a Continuously Evolving Organic Food System", *Journal of Agricultural and Environmental Ethics, 28*, pp. 767–787, doi:10.1007/s10806-015-9559-6.

324. Topal, B. and Sahin, H. (2018), "The Influence of Information Sharing in the Supply Chain Process on Business Performance: An Empirical Study", *Studies in Informatics and Control*, Vol. 27 No. 2, pp. 203-214. https://doi.org/10.24846/v27i2y201808

325. Touboulic, A. And Walker, H. (2015), "Love me, love me not: A nuanced view on collaboration in sustainable supply chains", *Journal of Purchasing and Supply Management*, Vol. 21 No. 3, pp. 178-191. https://doi.org/10.1016/j.pursup.2015.05.001

326. Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic

Review", *British Journal of Management*, Vol. 14, pp. 207-222. doi:10.1111/1467-8551.00375

327. Tregurtha, N. L. and Vink, N. (1999), "Trust and supply chain relationships: a South African case study", *Agrekon*, Vol. 38 No. 4, pp. 755–765. doi:10.1080/03031853.1999.9524886

328. Trienekens, J. H., Wognum, P. M., Beulens, A. J. M. and van der Vorst, J. G. A. J. (2012), "Transparency in complex dynamic food supply chains", *Advanced Engineering Informatics*, Vol. 26 No. 1, pp. 55–65. doi:10.1016/j.aei.2011.07.007

329. Tröger, K., Lelea, M.A. and Kaufmann, B. (2018), "The Fine Line between Trusting and Cheating: Exploring Relationships between Actors in Ugandan Pineapple Value Chains", *The European Journal of Development Research*, Vol. 30, pp. 823–841. DOI: 10.1057/s41287-018-0134-7

330. Truong Quang, H., Sampaio, P., Carvalho, M. S., Fernandes, A. C., Binh An, D. T. and Vilhenac, E. (2016), "An extensive structural model of supply chain quality management and firm performance", *International Journal of Quality & Reliability Management*, Vol. 33 No. 4, pp. 444-464. DOI 10.1108/IJQRM-11-2014-0188

331. Tsolakis, N. K., Keramydas, C. A., Toka, A. K., Aidonis, D. A. and Iakovou, E. T. (2014), "Agrifood supply chain management: A comprehensive hierarchical decision-making framework and a critical taxonomy", *Biosystems Engineering*, Vol. 120, pp. 47-64. https://doi.org/10.1016/j.biosystemseng.2013.10.014

332. Uddin, N. (2017), "Inter-organizational relational mechanism on firm performance", *Industrial Management & Data Systems*, Vol. 117 No. 9, pp. 1934-1953. DOI 10.1108/IMDS-03-2016-0093

333. Ülgen, V.S., Björklund, M., Simm, N. and Forslund, H. (2019), "Inter-Organizational Supply Chain Interaction for Sustainability: A Systematic Literature Review", *Sustainability*, Vol. 11 No. 19, pp. 5488. doi:10.3390/su11195488

334. Utomo, D. S., Onggo, B. S. and Eldridge, S. (2018), "Applications of agent-based modelling and simulation in the agri-food supply chains", *European Journal of Operational Research*, Vol. 269 No. 3, pp. 794-805. https://doi.org/10.1016/j.ejor.2017.10.041

335. Van der Vorst, J.G.A.J. (2000), "Effective food supply chains: generating, modelling and evaluating supply chain scenarios", PhD-thesis Wageningen University, available at: https://edepot.wur.nl/121244 (accessed 20 February)

336. Van der Vorst, J.G.A.J., van Dijk, S. J. and Beulens, A. J. M. (2001), “Supply Chain Design in the Food Industry”, *The International Journal of Logistics Management*, Vol. 12 No. 2, pp. 73–86. doi:10.1108/09574090110806307

337. Van der Vorst, J.G.A.J., Beulens, A. and van Beek, P. (2005), “Innovations in Logistics and ICT in Food Supply Chain Networks”, Jongen, W.M.F. and Meulenberg, M.T.G. (Eds), *Innovation in Agri-Food systems*, Wageningen Academic Publishers, pp. 245 - 291.

338. Van der Vorst, J. G. A. J. (2006), “Performance measurement in agri-food supply-chain networks - An overview”, Ondersteijn, C. J. M., Wijnands, J. H. M., Huirne, R. B. M. and van Kooten, O. (Ed.s), *Quantifying the agri-food supply chain*, Springer, Netherlands, pp. 13-24. DOI: 10.1007/1-4020-4693-6_2

339. Van der Vorst, J.G.A.J., da Silva, Carlos A. and Trienekens, Jacques H., (2007), “Agro-industrial supply chain management: concepts and applications”, Agricultural management, marketing and finance occasional paper, Food and Agriculture Organization of the United Nations, Rome, ISBN 978-92-5-105831-2

340. van der Werff, S., Trienekens, J., Hagelaar, G. and Pascucci, S. (2018), “Patterns in sustainable relationships between buyers and suppliers: evidence from the food and beverage industry”, *International Food and Agribusiness Management Review*, Vol. 21 No 8, pp. 1023-1043. DOI: 10.22434/IFAMR2017.0059

341. van Eck, N. J. and Waltman, L. (2010), "Software survey: VOSviewer, a computer program for bibliometric mapping", *Scientometrics*, Vol. 84 No.2, pp. 523-538. DOI 10.1007/s11192-009-0146-3

342. van Eck, N.J. (2011), "Methodological advances in bibliometric mapping of science". (No. EPS-2011-247-LIS). ERIM Ph.D. Series Research in Management. Erasmus Research Institute of Management. Retrieved from http://hdl.handle.net/1765/26509

343. Vieira, L. M. and Traill, W. B. (2008), “Trust and governance of global value chains: The case of a Brazilian beef processor”, *British Food Journal*, Vol. 110 No. 4-5, pp. 460-473. DOI 10.1108/00070700810868960

344. Vieira, J., Yoshizaki, H. and Ho, L. (2009), “Collaboration intensity in the Brazilian supermarket retail chain”, *Supply Chain Management: An International Journal*, Vol. 14 No. 1, pp. 11–21. DOI 10.1108/13598540910927269

345. Viitaharju, L. and Lähdesmäki, M. (2012), "Antecedents of trust in asymmetrical business relationships", *Marketing Intelligence & Planning*, Vol. 30 No. 5, pp. 567–587. doi:10.1108/02634501211251061

346. Vlachos, I.P. and Bourlakis, M. (2006), "Supply Chain Collaboration Between Retailers and Manufacturers: Do They Trust Each Other?", *Supply Chain Forum: An International Journal*, Vol. 7 No. 1, pp. 70-80. DOI: 10.1080/16258312.2006.11517159

347. Vlachos, I. P., Bourlakis, M. and Karalis, V. (2008), "Manufacturer–retailer collaboration in the supply chain: Empirical evidence from the Greek food sector", *International Journal of Logistics Research and Applications*, Vol. 11 No. 4, pp. 267-277. http://dx.doi.org/10.1080/13675560701768517

348. Vlahović, B., Puškarić, A. and Šojić, S. (2015), "Research into Agricultural Producers' Motives for Engaging in Organic Production in the Republic of Serbia", *Economic Insights – Trends and Challenges*, *4*(67), pp. 31-39., available on: http://repository.iep.bg.ac.rs/233/

349. Vroegindewey, R. and Hodbod, J. (2018), "Resilience of Agricultural Value Chains in Developing Country Contexts: A Framework and Assessment Approach", *Sustainability*, Vol. 10, No. 4, 916. https://doi.org/10.3390/su10040916

350. Vuković, M. (2022), "Strukturalno modeliranje utjecaja bihevioralnih faktora na odlučivanje i performanse investitora na financijskom tržištu" (Doctoral dissertation, University of Split. Faculty of economics Split) https://urn.nsk.hr/urn:nbn:hr:124:188803

351. Wankhade, N. and Kumar Kundu, G. (2018), "Supply chain performance management: a structured literature review", *International Journal of Value Chain Management*, Vol. 9 No. 3, pp. 209-240. DOI: 10.1504/IJVCM.2018.10015073

352. Webster, K. (2001), "The scope and structure of the food supply chain, In. Food Supply Chain Management", Eastham, J. F., Sharples, L. and Ball, S. D. (Ed.s), *Issues for the hospitality and retail sectors*, Butterworth-Heinemann, Oxford, pp.37-54.

353. Whipple, J.M., Griffis, S.E. and Daugherty, P.J. (2013), "Conceptualizations of Trust: Can We Trust Them?", *Journal of Business Logistics*, Vol. 34, No. 2, pp. 117-130. doi:10.1111/jbl.12014

354. White, H.M.F. (2000), "Buyer-supplier relationships in the UK fresh produce industry", *British Food Journal*, Vol. 102 No. 1, pp. 6-17. DOI: 10.1108/00070700010310605

355. Wier, M. and Calverley, C. (2002), “Market potential for organic foods in Europe”, *British Food Journal*, Vol. 104 No. 1, pp. 45-62. https://doi.org/10.1108/00070700210418749

356. Wilding, R. and Humphries, A.S. (2006), “Understanding collaborative supply chain relationships through the application of the Williamson organisational failure framework”, *International Journal of Physical Distribution & Logistics Management*, Vol. 36 No. 4, pp. 309-329. https://doi.org/10.1108/09600030610672064

357. Willer & Lernoud, 2016 - https://orgprints.org/id/eprint/29790/13/willer-lernoud-2016-global-data-biofach.pdf (

358. Williamson, O. E. (1979), "Transaction-cost economics: the governance of contractual relations", *The Journal of Law and Economics*, Vol. 22 No. 2, pp. 233-261.

359. Wong, C.Y., Wong, C.W.Y. and Boon-itt, S. (2015), “Integrating environmental management into supply chains: a systematic literature review and theoretical framework”, *International Journal of Physical Distribution and Logistics Management*, Vol. 45 No. 1/2, pp. 43 - 68. https://doi.org/10.1108/IJPDLM-05-2013-0110

360. Wu, I.-L., Chuang, C.-H. and Hsu, C.-H. (2014), “Information sharing and collaborative behaviors in enabling supply chain performance: A social exchange perspective”, *International Journal of Production Economics, 148,* pp.122-132. doi:10.1016/j.ijpe.2013.09.016.

361. Yang, D., Sheng, S., Wu, S. and Zhou, K. Z. (2018), “Suppressing partner opportunism in emerging markets: Contextualizing institutional forces in supply chain management”, *Journal of Business Research*, *90*, pp. 1-13. https://doi.org/10.1016/j.jbusres.2018.04.037

362. Ye, F. and Xu, X.J. (2009), “Impact of Trust and Relationship Commitment among Supply Chain Partners on Information Sharing and Operational Performance”, *System Engineering Theory and Practice*, Vol. 29 No. 8, pp. 36-49.

363. Zaheer, N. and Trkman, P. (2017), “An information sharing theory perspective on willingness to share information in supply chains”, *The International Journal of Logistics Management*, *28*(2), pp. 417-443. http://dx.doi.org/10.1108/IJLM-09-2015-0158

364. Zander, K. and Beske, P. (2014), “Happy growers! Relationship quality in the German organic apple chain”, *International Food and Agribusiness Management Review*, Vol. 17 No. 3, pp. 1-20. 10.22004/ag.econ.183498

365. Zhang, X. and Aramyan, L.H. (2009), "A conceptual framework for supply chain governance: An application to agri-food chains in China", *China Agricultural Economic Review*, Vol. 1 No. 2, pp. 136-154. https://doi.org/10.1108/17561370910927408

366. Zhang, X. and Hu, D. (2011), "Farmer-buyer relationships in China: the effects of contracts, trust and market environment", *China Agricultural Economic Review*, Vol. 3 No. 1, pp. 42-53. http://dx.doi.org/10.1108/17561371111103534

367. Zhang, W.G., Fu, J., Li, H. and Xu, W. (2012), "Coordination of supply chain with a revenue-sharing contract under demand disruptions when retailers compete", *International Journal of Production Economics*, *138*(1), pp.68-75.

368. Zhang, M. and Huo, B. (2013), "The impact of dependence and trust on supply chain integration", *International Journal of Physical Distribution & Logistics Management*, *43*(7), pp.544-563. doi:10.1108/ijpdlm-10-2011-0171.

369. Zhong, R., Xu, X. and Wang, L. (2017), "Food supply chain management: systems, implementations, and future research", *Industrial Management & Data Systems*, Vol. 117 No. 9, pp. 2085-2114. https://doi.org/10.1108/IMDS-09-2016-0391

370. Zhu, Z., Bai, Y., Dai, W., Liu, D. and Hu, Y. (2021), "Quality of e-commerce agricultural products and the safety of the ecological environment of the origin based on 5G Internet of Things technology", *Environmental Technology & Innovation*, *22*, p. 101462, doi:10.1016/j.eti.2021.101462.

371. Zupic, I. and Čater, T. (2015), "Bibliometric Methods in Management and Organization", *Organizational Research Methods*, Vol. 18 No. 3, pp. 429–472. https://doi.org/10.1177/1094428114562629

372. Żakowska-Biemans, S. (2011) "Polish consumer food choices and beliefs about organic food", *British Food Journal*, *113*(1), pp.122-137, https://doi.org/10.1108/00070701111097385

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APPENDIX A: Chapter 2

Table 1. Terminology used in AFSC papers

Terminology	Authors
Food chain (FC)	*Fischer et al. (2007), Fritz and Fischer (2007), Kühne et al. (2013)*
Agri food chain (AFC)	*Ameseder et al. (2008), Canavari et al. (2010), Fischer (2013), Kataike et al. (2019)*
Food retail supply chain	*Jie and Gengatharen (2019)*
Food supply chain (FSC)	*Van der Vorst (2000), Mikkola (2008), Maglaras et al. (2015), Eksoz et al. (2019)*
Agri-food supply chain (AFSC)	*Dania et al. (2016), Aramyan et al. (2007), Leat and Revoredo-Giha (2008), Hisjam and Sutopo (2017), Dania et al. (2018), Stone and Rahimifard (2018), Utomo et al. (2018), Badraoui et al. (2019)*
Agriculture Supply Chain (ASC)	*Routroy and Behera (2017), Utomo et al. (2018)*
Agricultural Product Supply Chains	*Sun et al. (2018)*
Food supply chain management (FSCM)	*Dani (2015), Zhong et al. (2017), Sufiyan et al. (2019)*
Agri-food supply chain management (AFSCM)	*Tsolakis et al. (2014), Luo et al. (2018)*
Food industry (FI)	*Mena et al. (2009), Viitaharju and Lähdesmäki (2012), Beske et al. (2014)*
Agri-food industry (AFI)	*Matopoulos et al. (2009)*
Agri-food industry supply chain	*Uddin (2017)*
Fresh food supply chain (FFSC)	*Hingley (2005b), Nakandala et al. (2017), Nakandala et al. (2019)*
Fresh produce supply chain management (FPSCM)	*Shukla and Jharkharia (2013)*
Agri-fresh supply chain (AFSC)	*Sharma et al. (2017)*
Fresh milk supply chains	*Boniface (2012)*
Agri-food supply chain networks (AFSCN)	*Van der Vorst (2006)*
Food processing supply chains (FPSC)	*Prakash (2018)*
Processed food supply chain management (PFSCM)	*Mahajan et al. (2017)*
Perishable food supply chain quality (PFSCQ)	*Siddh et al. (2018)*

Dairy supply chain	*Susanty et al. (2017)*
Beef supply chain	*Ding et al. (2014)*
Pork supply chain	*Martins et al. (2019)*
Agri-fresh food supply chain quality (AFSCQ)	*Siddh et al. (2017)*
Organic food chain (OFC)	*Kottila and Rönni (2008)*
Organic food supply chain (OFSC)	*Shashi et al. (2015), Cavaliere et al. (2016)*
Organic dry food supply chain	*Jacob-John (2018)*
Organic Apple Chain	*Zander and Beske (2014)*
Short food supply chain (SFSC)	*Renting et al. (2003), Wubben et al. (2013)*
Food value chain (FVC)	*Troger et al. (2018)*
Agricultural value chain (AVC)	*Vroegindewey and Hodbod (2018)*

Table 2. 129 relevant keywords

No.	**Keywords – Group 1** AGICULTURE/ FARMING/ ORGANIC/FOOD (35 KW)	**Keywords – Group 2** SUPPLY CHAIN/ FOOD SUPPLY CHAIN/ FOOD SYSTEM (44 KW)	**Keywords – Group 3** RELATIONSHIP/ COLLABORATION/ TRUST/ PERFORMANCE (50 KW)
1	agricultural products	food	relationship
2	agriculture	food chain	chain relationship quality
3	agri-food sector	supply chain	supply chain relationships
4	agri-fresh food	food chain management	buyer-seller relationship
5	fruit and vegetable producer	food supply chain management	relationship marketing
6	farming	food system	relationship quality
7	small-scale farmers	food supply networks	interfirm relations
8	family farm	alternative food networks	actors' partnership
9	small agricultural enterprises	food policy	stakeholder engagement
10	small farm competitiveness	sustainable food supply chain	interorganisational relationship
11	small and medium enterprises	sustainable food system	long-term relationships
12	local farming	value based food supply chain	collaboration and relationships
13	local food enterprise	value based food chain	communication
14	locally based agriculture	value added food chain	co-operatives
15	local food producer	agri-food supply chain	stakeholder engagement
16	local food	agri-fresh food supply chain quality	business models
17	organic foods	agri-food system	horizontal and vertical networks
18	organic food supply chain	distribution	supply chain strategy
19	organic agriculture	distribution channels	relational embeddedness in a channel

20	organic production	food distribution	chain coordination
21	organic food producers	sales channel	trust
22	organic food production	direct selling	benefits of trust
23	organic food consumption	different sales channels	trustworthiness
24	organic consumers	short distribution chain	levels of trust
25	ecological agriculture	short sales chains	determinants to trust
26	ecological food	short food supply chain	organic-label trust
27	organic farming	markets	power
28	organic market	farmers' market	strengths
29	organic marketing	food logistic	weaknesses
30	organic food markets	food retail	producer requirements
31	agri-food movements	food retailers	retail requirements
32	buying local	specialty food retailing	credibility
33	buy-local movement	local food systems	loyalty
34	product attributes of local food and organic food	local food network	commitment
35	organic-label trust	localized food systems	expectations
36		food wholesalers	knowledge
37		urban food systems	special expectations
38		territorial short food supply chains	motivation
39		green supply chains	consumer motivation
40		sustainability	consumer typology
41		sustainable development	consumer behaviour
42		supply chain development	consumer acceptance
43		supply chain sustainable agriculture	entrepreneurial strategies
44		community supported agriculture	corporate responsibility
45			agricultural enterprises
46			fair trade
47			ethics
48			performance measurement
49			efficiency
50			satisfaction

Table 3. Methodological approach

Table 3.1. Number of papers in three basic search groups with respect to the search string and selection of 50 keywords

I. AGRICULTURE/FARMING/ORGANIC/FOOD (N=10)
agriculture; agricultural products; farming; small-scale farmers; small and medium enterprises; organic foods; organic food supply chain; organic market; fruit and vegetable producer; local food

Search string	**Number of selected papers/Total number of papers**
1. TS=(collaboration OR trust OR performance) AND (TS=("supply chain management") AND……	**20/423**
2. TS=(collaboration OR trust OR performance) AND (TS=("food supply chain") AND……	**4/21**

II. SUPPLY CHAIN/FOOD SUPPLY CHAIN/FOOD SYSTEM (N=15)

agri-food supply chain; agri-food system; food system; food chain; food; food policy; sustainable food supply chain; value based food supply chain; sales channel; distribution; distribution channels; farmers' market; direct selling; food retail; food retailers	
1. TS=(collaboration OR trust OR performance) AND (TS=("supply chain management") AND.....	**82/1.927**
2. TS=(collaboration OR trust OR performance) AND (TS=("food supply chain") AND.....	**16/88**
III. RELATIONSHIP/COLLABORATION/TRUST/PERFORMANCE (N=25)	
realtionship; relationship marketing; buyer-seller relationship; relationship quality; interorganisational relationship; long-term relationships; collaboration and relationships; communication; horizontal and vertical networks; relational embeddedness in a channel; trust; benefits of trust; trustworthiness; levels of trust; determinants to trust; power; strengths; weaknesses; credibility; expectations; loyalty; commitment; performance measurement; efficiency; satisfaction	
1. TS=(collaboration OR trust OR performance) AND (TS=("supply chain management") AND.....	**309/5.859**
2. TS=(collaboration OR trust OR performance) AND (TS=("food supply chain") AND.....	**93/527**
TOTAL	**524/8.845**

Table 3.2. Research results

SEARCH STRING	
Total papers - search in Clarivate Analytics WoS CC database	**524/8.845**
Manual search/ snowball sampling strategy	**85/115**
TOTAL	**609/8.960**

Table 3. Research results after first and second selection

SELECTION PROCESS	
Papers after first selection	**163/609**
Papers after second selection - topic is CTP among the AFSC or FSC chain actors	**137**

Table 4. A total of 137 papers comprehensive overview

Author(s)	C	T	P	Research methodology	Categorization of papers	R	Type of relationship	Chain actors	Sample	Perception
Den Ouden *et al.* (1996)	X			conceptual approach			-	n/a	n/a	n/a
Nitschke and O'Keefe (1997)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R5	primary agri-food producer and agri-food co-operative	>primary agri-food producer	>70 grain growers the members of co-operative	individual perception
Fearne (1998)	X	X		empirical qualitative study	VERTICAL AND HORIZONTAL COLLABORATION	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>over 2,000 farmers >some of the country's largest beef processors >meat buyers from the major supermarkets	individual perception
Hogarth-Scott (1999)	X	X		conceptual approach			-	n/a	n/a	n/a
Siemieniuch et al. (1999)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R6	food processor and food retailer	>food processor >food retailer	>12 manufacturers of foodstuffs >19 staff members in large supermarket	individual perception
Tregurtha and Vink (1999)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R2	primary agri-food producer and agri-food processor	>primary agri-food producer >agri-food processor	>13 barley farmers >barley-scheme management team	individual perception
Batt and Rexha (2000)		X		conceptual approach			-	n/a	n/a	n/a
White (2000)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>14 agri-food suppliers >14 retail respondents (senior buyers)	dyadic interface
Blundel and Hingley (2001)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>10 fresh produce firms >35 strategic and operational level managers at 7 of the largest UK multiple retailers	dyadic interface

Lindgreen (2001)		X		conceptual approach		-	n/a	n/a	n/a
Hansen et al. (2002)		X	X	empirical quantitative and qualitative study	VARIOUS LEVELS/TYPES OF TRUST FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R5	relationship among and between members of agri-food co-op	>agri-food cooperative (co-op)	>71 farmer-owned grain-marketing co-op >708 farmer-owned cotton marketing co-op	individual perception
Hardman et al. (2002)	X	X		empirical quantitative study	TRUST AS COLLABORATION PREDICTOR	R8	primary agri-food producer and food exporter	>primary agri-food producer >food exporter	>37 apple producers >5 largest apple packers >7 largest apple exporters	individual perception
Batt (2003a)		X		empirical quantitative study	KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, re-putation, cheating, experi-ence..)	R4	primary agri-food producer and the preferred market agent	>primary agri-food producer	>196 fresh fruit and vegetable growers	individual perception
Batt (2003b)		X		empirical qualitative study	KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, re-putation, cheating, experi-ence..)	R1	primary agri-food supplier and primary agri-food producer	>primary agri-food producer	>235 potato famers	individual perception
Batt (2003c)		X	X	empirical qualitative study	KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, re-putation, cheating, experi-ence..) NON-FINANCIAL PERFORMAMANCE MEASUREMENTS (satisfaction, fairness, operational perfromances…)	R4	primary agri-food producer, food distributor, food wholesaler and food retailer	>primary agri-food producer >food distributor >food wholesaler >food retailer	>60 potato famers >60 potato traders >10 potato wholesalers >10 potato retailers	individual perception

Dapiran and Hogarth-Scott (2003)	X			empirical qualitative study	CATEGORY MANAGEMENT	R7	food supplier and food retailer	>food supplier >food retailer	retail category managers supplier category managers	individual perception
Lindgreen (2003)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	number of suppliers, processors and retailers in bacon supply chain	individual perception
Masuku *et al.* (2003)		X	X	empirical qualitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT NON-FINANCIAL PERFORMAMANCE MEASUREMENTS (satisfaction, fairness, operational perfromances…)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>124 smallholder cane growers in the Swaziland sugar industry	individual perception
Simons *et al.* (2003)			X	empirical qualitative study	PERFORMANCE MEASURES FOR WHOLE CHAIN	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	red meat value chain participants >primary producer of sheep >meat processor (MeatCo) >supermarket retailer (Superbuy)	individual perception
Duffy and Fearne (2004a)		X	X	empirical quantitative and qualitative study	TRUST IN PARTNERS HONESTY AND TRUST IN PARTNERS BENEVOLENCE FINANCIAL PERFORMANCE MEASUREMENTS	R4	primary agri-food producer and food retailer	>primary agri-food producer	>155 managing directors of fresh produce suppliers who supplied food retailers directly	individual perception
Duffy and Fearne (2004b)		X	X	empirical quantitative and qualitative study	TRUST IN PARTNERS HONESTY AND TRUST IN PARTNERS BENEVOLENCE	R4	primary agri-food producer and food retailer	>primary agri-food producer	>155 managing directors of fresh produce suppliers who supplied food retailers directly	individual perception

					FINANCIAL PERFORMANCE MEASUREMENTS					
Hingley (2004)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R7	food supplier and food retailer	>food supplier >food retailer	>4 food suppliers >5 food retailers	dyadic interface
Masuku and Kirsten (2004)		X	X	empirical qualitative study	IMPACT OF TRUST ON PERFOROMANCE MEASUREMENT	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>124 smallholder cane growers in the Swaziland sugar industry	individual perception
Fearne *et al.* (2005)			X	empirical quantitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT	R7	food supplier and food retailer	>food supplier	>140 suppliers of own label products in the main commodity sectors (meat, dairy, fresh produce)	individual perception
Hingley (2005a)		X		conceptual approach			-	n/a	n/a	n/a
Hingley (2005b)		X		empirical qualitative study	ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence, positive past collaboration, existence of personal bonds)	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>15 fresh food suppliers in the UK >7 leading multiple food retailing organizations	dyadic interface
Hingley (2005c)		X		empirical qualitative study	ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence, positive past	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>15 fresh food supplier in the UK >7 leading multiple food retailing organizations	dyadic interface

					collaboration, existence of personal bonds)					
Lindgreen *et al.* (2005)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R3	primary agri-food producer, food processor, food distributor and food retailer	>primary agri-food producer >food processor >food distributor >food retailer	>one respondent at each of the feed producer, dealer, trader, slaughterhouse/ processor and retailer	individual perception
Darroch and Mushayanyama (2006)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R4	primary agri-food producer and the preferred market agent relationship	>primary agri-food producer	>48 fully organic certified growers	individual perception
Fearne *et al.* (2006)	X			empirical qualitative study	CATEGORY MANAGEMENT	R7	food supplier and food retailer	>food retailer	>key representatives from the two business involved supermarkets buyers	individual perception
Hingley *et al.* (2006)	X	X		empirical qualitative study	TRUST AS COLLABORATION PREDICTOR	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>one large fruit supplier and one large vegetable supplier >large and a small multiple retailer	dyadic interface
Keivan Zokaei and Simons (2006)			X	conceptual approach			-	n/a	n/a	n/a
Schulze *et al.* (2006)		X		empirical qualitative study	RELATIONSHIP QUALITY (satisfaction, trust, commitment)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>209 dairy farmers >357 pork farmers (large farms)	individual perception
Vlachos and Bourlakis (2006)	X	X		empirical qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R6	food processor and food retailer	>food processor >food retailer	>57 food manufacturers >40 food retailers	individual perception
Aramyan *et al.* (2007)			X	empirical qualitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R4	primary agri-food producer, food distributor, food wholesaler and food retailer	>primary agri-food producer >food distributor >food wholesaler >food retailer	>7 owner-growers of tomato producing firms >the manager of a distribution center	individual perception

								>the wholesaler of a wholesale company >two managers of supermarkets	
Fischer *et al.* (2007)		X	empirical qualitative study	RELATIONSHIP QUALITY: (satisfaction, trust and commitment) KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, reputation, cheating, experience..) INFLUENCE OF POSITIVE PAST COLLABORATION (personal relationships, personal bonds) ON TRUST	R3	primary agri-food producer, food processor, food distributor and food retailer relationship	>food distributor	>28 largely senior executives or directors of representative or trade associations	individual perception
Fritz and Fischer (2007)	X	X	empirical qualitative study	INFLUENCE OF POSITIVE PAST COLLABORATION (personal relationships, personal bonds) ON TRUST VARIOUS LEVELS/TYPES OF TRUST	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>farmers, processors and retailers sample size, n=747	individual perception
Gyau and Spiller (2007a)		X	empirical quantitative and qualitative study	ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence, positive past	R8	primary agri-food producer and food exporter	>food exporter	>101 managers of fresh fruit and vegetable export firms	individual perception

				collaboration, existence of personal bonds)						
Gyau and Spiller (2007b)		X		empirical quantitative and qualitative study	RELATIONSHIP QUALITY (Satisfaction,Trust and Commitment) DEVELOPMENT OF TRUST IN INTERNATIONAL CONTEXT (cultural background and cultural disimilarity)	R8	primary agri-food producer and food exporter	>food exporter	>101 managers of fresh fruit and vegetable export firms	individual perception
Han *et al.* (2007)			X	empirical quantitative and qualitative study	FINANCIAL PERFORMANCE MEASUREMENT (food SC-u)	R7	food supplier and food procesor relationship	>food supplier >food procesor	>229 pork slaughtering and processing firms	individual perception
Higgins *et al.* (2007)		X		empirical qualitative study	RELATIONSHIP QUALITY: (satisfaction,trust and commitment)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer >agri-food processor	>five participants representing growing, harvesting and milling in Maryborough and two participants from the growing and harvesting sectors >seven participants representing growing, harvesting and milling and four participants from the growing and harvesting sectors in the Herbert	individual perception
Knight *et al.* (2007)		X		empirical qualitative study	TRUST AS PREREQUISITE FOR FOOD QUALITY AND FOOD SAFETY DEVELOPMENT OF TRUST IN INTERNATIONAL CONTEXT (cultural	R8	relationship among different members of the international food distribution channel (importers, distributors, manufacturers, buyers)	>different international food distributon channel actors	>9 respondent companies were importers and distributors of meat, seafood, fruit or manu-factured food products >2 meat and/or seafood-based products manufacturers who import	individual perception

					background and cultural dissimilarity)				the raw ingredients for further processing >2 buyers for major supermarket chains >2 industry organization representatives	
Masuku *et al.* (2007)		X		empirical qualitative study	RELATIONSHIP QUALITY (satisfaction, trust, commitment	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>124 smallholder cane growers in the Swaziland sugar industry	individual perception
Matopoulos *et al.* (2007)	X	X		empirical qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution) KEY FACTORS INFLUENCING REALTIONSHIP DEVELOPMENT	R2	primary agri-food producer and agri-food processor	>primary agri-food producer and agri-food processor	>two companies- agri-food SME's >the biggest food processors in Greece >family-based company, which became biggest supplier of fresh vegetables	individual perception
Ameseder *et al.* (2008)		X		empirical qualitative study	DEVELOPMENT OF TRUST IN INTERNATIONAL CONTEXT (cultural background and cultural dissimilarity)	R9	B2B relationships in agri-food chain	>food chain leaders and food chain business associations	>200 food chain business leaders and business association	individual perception
Gellynck *et al.* (2008)			X	empirical qualitative study	PERFORMANCE MEASUREMENT INSTRUMENT FOR TRADITIONAL FOOD SUPPLY CHAINS (traditionalism, efficiency, responsiveness, quality and chain balance)	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	n=84 Hungary >6 white pepper growers >7 animal breeders >6 white pepper processing companies >7 dry sausage manufacturers >11 retailers Italy	individual perception

									>8 suppliers of raw materials >6 dry ham manufacturers >8 cheese plants >8 retailers Belgium >2 milk suppliers >1 supplier of malt >5 cheese plant >5 breweries >4 retailers	
Ghosh and Fedorowicz (2008)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST THE IMPACT OF TRUST ON INFORMATION SHARING	R7	food supplier and food retailer	>food supplier >food retailer	>2 major suppliers >24 major retailer	individual perception
Gyau and Spiller (2008)			X	empirical qualitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R8	primary agri-food producers-exporters and food importers	>primary agri-food producers-exporters	>101 fresh fruit and vegetable exporter	individual perception
Hingley *et al.* (2008)	X			empirical qualitative study	CATEGORY MANAGEMENT	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>primary fresh agri-food producer >intermediary for channel-leading multiple retailers	dyadic interface
Kottila and Rönni (2008)	X	X		empirical qualitative study	TRUST AS COLLABORATION PREDICTOR	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>organic farmers >retailer >n=28	individual perception
Leat and Revoredo-Giha (2008)	X			empirical quantitative and qualitative study	TRUST AS MEDIATOR BETWEEN PRICE SATISFACTION AND PRODUCER LOYALTY	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer	>611 farmers-beef and sheep producers	individual perception
Lu *et al.* (2008)		X	X	empirical quantitative study	INTERPERSONAL TRUST FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R3	primary agri-food producer and food processor and exporter	>primary agri-food producer >food processor and exporter	>167 vegetable farmers (sellers) >84 vegetable processing and exporting companies (buyers)	individual perception

Mikkola (2008)	X			empirical quantitative study	COLLABORATION TROUGH SOCIAL RELATIONS	R9	three different food supply chains	>actors from three different food supply chains	>different chain actors (organic farmers, local public caterers, local retailers, food processors, vegetable broker company)	individual perception
Vieira and Traill (2008)		X		empirical qualitative study	TRUST AS PREREQUISITE FOR FOOD QUALITY AND FOOD SAFETY	R8	food processor, food distributor and food retailer	>food processor >food distributor >food retailer	>a beef processor and its relationship with two different distribution channels, an EU importer and an EU retail chain operating in Brazil	individual perception
Vlachos *et al.* (2008)	X			empirical quantitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R6	food processor and food retailer	>food processor >food retailer	>food retailers >food manufacturers >n=71	individual perception
Fischer *et al.* (2009)	X	X		empirical quantitative and qualitative study	INFLUENCE OF POSITIVE PAST COLLABORATION (personal relationships, personal bonds) ON TRUST THE IMPORTANCE OF TRUST FOR SUSTAINABLE SC	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>1.442 farmers, processors and retailers in six countries >962 farmers >271 processors >198 retailers >11 not specified or others	individual perception
Gyau and Spiller (2009)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R8	primary agri-food producers-exporters and food importers	>primary agri-food producers-exporters	>101 fresh fruit and vegetable exporter	individual perception
Mena *et al.* (2009)	X			empirical quantitative and qualitative study	INTRA-ORGANIZATIONAL AND INTER-ORGANIZATIONAL COLLABORATION	R9	chain 1: agri-food intermediary and food producer chain 2: primary agri-food producer and primary agri-food supplier	>chain 1: agri-food intermediary and food producer >chain 2: primary agri-food producer and primary agri-food supplier	>two case studies in the UK food and drink industry	individual perception

Molnár and Gellynck (2009)			X	empirical quantitative study	PERFORMANCE MEASUREMENT INSTRUMENT FOR TRADITIONAL FOOD SUPPLY CHAINS (traditionalism, efficiency, responsiveness, quality and chain balance)	R3	primary agri-food producers, primary agri-food processors and food retailers	>primary agri-food producers >agri-food processors >food retailers	>271 chain members (91 suppliers, 91 focal companies/processors and 89 customers/retailers) of 91 traditional food chains from three European countries (Belgium, Italy and Hungary)	dyad into triads
Reynolds *et al.* (2009)	X	X		empirical qualitative study	RELATIONSHIP QUALITY: (satisfaction, trust and commitment) INFLUENCE OF POSITIVE PAST COLLABORATION (personal relationships, personal bonds) ON TRUST THE IMPORTANCE OF TRUST FOR SUSTAINABLE SC	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>95 farmer-processor chain stage and >47 from the processor-retailer chain stage	individual perception
Taylor and Fearne (2009)	X			empirical qualitative study	CATEGORY MANAGEMENT	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>six value chain case studies >one or two senior managers from each of the companies involved, together with two external researchers	individual perception
Vieira *et al.* (2009)	X			empirical quantitative study	INTERPERSONAL COLLABORATION (flexibility, trust, reciprocity, satisfaction, and inter-dependance...)	R6	food processor and food retailer	>food supplier/processor	>87 main suppliers of consumer goods, including food, from one of the largest Brazilian retailer	individual perception
Zhang and Aramyan (2009)	X	X		conceptual approach			-	n/a	n/a	n/a

Boniface *et al.* (2010)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>133 farmers (dairy producers)	individual perception
Canavari *et al.* (2010)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R9	B2B relationships in agri-food chain	>different members of agri-food sector	>60 e-marketplaces operating in the agri-food sector >16 key players in the food industry	individual perception
Coronado *et al.* (2010)			X	empirical quantitative and qualitative study	AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility, responsiveness, food quality i food safety	R4	primary agri-food producer and food retailer	>primary agri-food producer	>122 avocado producers	individual perception
Hofstede *et al.* (2010)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R9	B2B relationships in agri-food chain	>different members of agri-food sector	>18 key informants in five EU countries, involving practitioners from the fresh fruit and vegetable, grain, meat and olive supply chains	individual perception
Kähkönen and Tenkanen (2010)	X			empirical qualitative study	IMPACT OF POWER ON COLLABORATION	R7	food supplier, food processor and food retailer	>food supplier >food processor >food retailer	>29 individual semi-structured interviews - a manufacturer, two supplier companies and a retailer in the role of a customer company	individual perception

Molnár *et al.* (2010)		X	X	empirical quantitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT PERFORMANCE MEASUREMENT INSTRUMENT FOR TRADITIONAL FOOD SUPPLY CHAINS (traditionalism, efficiency, responsiveness, quality and chain balance)	R3	primary agri-food producers, agri-food processors and food retailers	>primary agri-food producers >agri-food processors >food retailers	>270 companies from 3 European countries in 6 traditional food product categories >traditional food manufacturers, their suppliers and their customers	dyad into triads
Ortmann and King (2010)		X		conceptual approach		-	n/a	n/a	n/a	
Gellynck *et al.* (2011)	X	X		empirical quantitative study	IMPACT OF INTER-FIRM COLLABORATION ON INNOVATION CAPACITY	R3	primary agri-food producers, agri-food processors and food retailers	>primary agri-food producers >agri-food processors >food retailers	>270 companies from 3 European countries in 6 traditional food product categories >traditional food manufacturers, their suppliers and their customers	dyad into triads
Naspetti *et al.* (2011)	X	X	X	empirical quantitative and qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution) TRUST AS COLLABORATION PREDICTOR FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R3	primary agri-food producer, food processor, food distributor and food retailer	>primary agri-food producer >agri-food processor >food distributor >food retailer	>31 farmers >22 manufacturers/processors >10 distributors >21 retailers	individual perception

Puspitawati *et al.* (2011)		X		empirical quantitative and qualitative study	ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence, positive past collaboration, existence of personal bonds)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>307 farmers- potato producers	individual perception
Zhang and Hu (2011)		X		empirical quantitative study	TRUST AS COLLABORATION PREDICTOR	R4	primary agri-food producer and buyer relationship	>primary agri-food producer	>210 vegetable and orange farmers	individual perception
Bezuidenhout *et al.* (2012)	X			empirical qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R3	primary agri-food producer and agri-food processor	>primary agri-food producer	>40 different stakeholders in sugarcane production and processing	individual perception
Boniface (2012)		X		empirical quantitative study	INTERPERSONAL TRUST	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>133 dairy producers	individual perception
Boniface *et al.* (2012)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>133 dairy producers	individual perception
Ji *et al.* (2012)	X			empirical quantitative and qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R2	primary agri-food producer and agri-food processor	>food processor	>350 slaughtering-processing companies	individual perception
Lu et al. (2012)		X		empirical quantitative	INTERPERSONAL TRUST	R6	food processor and food exporter relationship	> food processor	>eight case studies >80 agri-food SMEs	individual perception

				and qualitative study						
Suvanto (2012)		X		empirical qualitative study	VARIOUS LEVELS/TYPES OF TRUST	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>food processing industry >9 respondents in rye chain >7 respondents in pork chain	individual perception
Viitaharju and Lähdesmäki (2012)		X		empirical quantitative and qualitative study	ANTECEDENTS FACTORS OF TRUST (communication, positive past collaboration i existence of personal bonds)	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>38 small food producers >54 retailers	dyadic interface
Fattahi *et al.* (2013)			X	empirical qualitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R6	food processor, food agent, food processor and food retailer	>food processor >food agent >food processor >food retailer	>3 industrial slaughterhouses >2 cold rooms >3 factories >more than 20 supermarkets	individual perception
Fischer (2013)	X	X		empirical quantitative study	ANTECEDENTS FACTORS OF TRUST (communication, positive past collaboration i existence of personal bonds) INFLUENCE OF POSITIVE PAST COLLABORATION	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>n = 1.430 (farmers, processors and retailers) >two commodity supply chains (meat and cereals) and two supply chain stages (farmer-processor and processor-retailer)	individual perception
Gagalyuk *et al.* (2013)		X	X	empirical quantitative and qualitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT	R6	food processor, food supplier and food buyer	> food processor	>100 branded food manufacturing companies	individual perception
Hamzaoui-Essoussi *et al.* (2013)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R4	food retailer, primary agri-food producer and certified organisations relationship	> food retailer >primary agri-food producer >certified organisations	>80 managers from super-stores, specialty stores, farmers markets, markets, producers and certification bodies (55 in Canada, 22 in France)	individual perception

Jie *et al.* (2013)		X	X	empirical quantitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS	R6	food processor and other SC members relationship	> food processor	>food enterprises >agri-food industries >beef processing industry	individual perception
Kühne *et al.* (2013)	X	X		empirical quantitative study	TRUST AS COLLABORATION PREDICTOR IMPACT OF INTER-FIRM COLLABORATION ON INNOVATION CAPACITY	R3	primary agri-food producers, agri-food processors and food retailers	> primary agri-food producers >agri-food processors >food retailers	>triplet of firms including the food manufacturer (FM), the supplier of the food manufacturer (S) and the customer of the food manufacturer (C)	dyad into triads
Lobo *et al.* (2013)	X	X	X	empirical quantitative study	WILLINGNES TO COLLABORATE AND FACTORS THAT INFLUENCE COLLABORATION ADVANTAGES PERSONAL TRUST (XINYONG) AND INFLUEN-CE ON NON FINANCIAL (loyalty) AND FINANCIAL PERFORMANCE OF FARMERS	R4	primary agri-food producer and food retailer	>primary agri-food producer >food retailer	>520 vegetable farmers	individual perception
Singh *et al.* (2013)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R9	food retailers and food consumers	>food retailers >food consumers	>401 respondents operating with organised non-livestock retailing	individual perception
Bourlakis *et al.* (2014)			X	empirical quantitative study	AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility, responsiveness, food quality i food safety)	R3	primary agri-food producer, food processor, food retailer, food catering relationship	>primary agri-food producer >food processor >food retailer >food catering relationship	>253 members of the Greek dairy supply chain including breeders, manufacturers, wholesalers, retailers and catering companies	individual perception

Bhagat and Dhar (2014)	X	X		empirical quantitative study	WILLINGNES TO COLLABORATE AND FACTORS THAT INFLUENCE COLLABORATION ADVANTAGES TRUST AS COLLABORATION PREDICTOR	R4	primary agri-food producer, food wholesaler	>primary agri-food producer >food wholesaler	>167 small pineapple growers who sell to wholesalers >17 wholesalers of pineapple	dyadic interface
Ding *et al.* (2014)		X	X	empirical quantitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility, responsiveness, food quality i food safety)	R6	food processor and food supplier and food customer	> food processor	>140 beef processors	individual perception
Sahara and Gyau (2014)		X		empirical quantitative study	RELATIONSHIP QUALITY: (satisfaction,trust and commitment)	R4	primary agri-food producer and food retailer	>primary agri-food producer	>602 chili farmers	individual perception
Schulze-Ehlers *et al.* (2014)	X	X		empirical quantitative study	IMPACT OF POWER ON COLLABORATION RELATIONSHIP QUALITY: (satisfaction, trust and commitment)	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>279 dairy farmers	individual perception
Singh (2014)			X	conceptual approach			-	n/a	n/a	n/a
Zander and Beske (2014)	X	X		empirical quantitative study	RELATIONSHIP QUALITY: (satisfaction, trust and commitment)	R4	B2B relationships in agri-food chain	>growers >sales organisations >organic wholesaler >retailers	>selected actors of the organic apple supply chain	individual perception

Anastasiadis and Poole (2015)	X			empirical qualitative study	WILLINGNES TO COLLABORATE AND FACTORS THAT INFLUENCE COLLABORATION ADVANTAGES	R4	primary agri-food producer, food wholesalers and food retailers	>primary agri-food producer >food wholesalers >food retailers	>21 organic and 14 conventional citrus producers >5 organic products trading companies, 1 cooperative of organic farmers and 2 conventional wholesalers >24 retailers and 6 specialised organic and health food stores	individual perception
Gorton *et al.* (2015)		X	X	empirical quantitative study	BUYER TRUSTWORTHINESS NON-FINANCIAL PERFORMANCE MEASUREMENT	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>300 dairy farmers	individual perception
Maglaras *et al.* (2015)	X			empirical quantitative and qualitative study	CATEGORY MANAGEMENT	R7	food supplier and food retailer	>food supplier	>398 food suppliers	individual perception
Touboulic and Walker (2015)	X			empirical qualitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R3	primary agri-food producer and multinational food companies	>primary agri-food producer >multinational food companies	>11 small agricultural suppliers in three distinct SCs (potatoes, oats, apples) >a large multinational buyer	individual perception
Aji (2016)		X		empirical quantitative study	ANTECEDENTS FACTORS OF TRUST (communication, positive past collaboration i existence of personal bonds)	R1	primary agri-food supplier and primary agri-food producer	>primary agri-food producer	>209 potato farmer	individual perception
Dania *et al.* (2016)	X			conceptual approach			-	n/a	n/a	n/a
Formentini and Romano (2016)	X			conceptual approach			-	n/a	n/a	n/a

Madichie and Yamoah (2016)		X		conceptual approach		-	n/a	n/a	n/a
Mutonyi *et al.* (2016)		X		empirical qualitative study	TRUST AS MEDIATOR BETWEEN PRICE SATISFACTION AND PRODUCER LOYALTY	R2	primary agri-food producer and agri-food processor	>primary agri-food producer	>600 farmers, mango producers	individual perception
Odongo *et al.* (2016)		X	X	empirical quantitative study	RELATIONSHIP QUALITY (satisfaction,trust and commitment) IMPACT OF TRUST ON PERFORMANCE MEASUREMENT PERFORMANCE MEASUREMENT INSTRUMENT FOR TRADITIONAL FOOD SUPPLY CHAINS	R3	primary agri-food producer, food processor or a wholesaler and food retailer	>primary agri-food producer >food processor or a wholesaler (focal firm) >food retailer	>150 agribusiness supply chain members from the maize supply chain >50 suppliers >50 focal firms >50 customers	dyad into triads
Bandara *et al.* (2017)		X	X	empirical quantitative study	RELATIONSHIP QUALITY (satisfaction,trust and commitment) NON-FINANCIAL PERFORMANCE MEASUREMENTS	R4	primary agri-food producers, food distributors or wholesaler	>primary agri-food producers	>284 growers of organic fruits and vegetables	individual perception
Banerjee and Mishra (2017)		X	X	empirical quantitative study	THE IMPACT OF TRUST ON INFORMATION SHARING FINANCIAL PERFORMANCE MEASUREMENTS	R7	food supplier and food retailer	>food retailer	>481 food retailer	individual perception
Brooks *et al.* (2017)		X		empirical qualitative study	KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, reputation, cheating, experience..)	R2	primary agri-food producer and agri-food processor	primary agri-food producer	>20 beef farmers	individual perception

Chopra *et al.* (2017)			X	empirical qualitative study	AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility,responsiveness, food quality i food safety	R3	primary agri-food producer, food processors and other upstream and downstream stakeholders	>primary agri-food producer >food processors >other upstream and downstream stakeholders	>20 rice mill owners >4 marketing federation >7 civil suppliers >5 primary agricultural society >2 Food Corp. of India >10 Fair price shop (FPS) >25 farmers >25 beneficiaries >n=98	individual perception
Cunha Callado and Jack (2017)			X	empirical quantitative study	AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility, responsiveness, food quality i food safety FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R1	primary agri-food suppliers, agri-food producer, food distributors and food retailers	>primary agri-food suppliers >agri-food producer >food distributors >food retailers	>121 Brazilian agribusiness companies >31 input supplier >13 farmers >47 distributors >30 retailers	individual perception
Msaddak *et al.* (2017)		X		empirical qualitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R3	primary agri-food producer, food processors and other upstream and downstream stakeholders	>primary agri-food producer >food processors and other upstream and downstream stakeholders	>two different focus groups Group 1- unorganized farmers, Group 2 - group of farmers being organized into a cooperative >35 small and medium dairy farmers >2 collectors of milk >2 collection centers >1 dairy industry >8 support organizations >1 input supplier	individual perception
Odongo *et al.* (2017)			X	empirical qualitative study	AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS	R3	primary agri-food producer, food processor or a	>primary agri-food producer	>150 agribusiness supply chain members from the maize supply chain	dyad into triads

							wholesaler and food retailer	>food processor or a wholesaler (focal firm) >food retailer	>50 suppliers >50 focal firms >50 customers	
Susanty *et al.* (2017)		X	X	empirical quantitative study	ANTECEDENTS OF TRUST (collaborative communication, power dependency, and price satisfaction, price transparency, relative price satisfaction, price quality, joint problem-solving, reputation, flexibility, dependence, positive past collaboration, existence of personal bonds) FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R5	primary agri-food producer and agri-food co-operative	>primary agri-food producer	>70 dairy farmers	individual perception
Uddin (2017)		X	X	empirical qualitative study	IMPACT OF TRUST ON PERFORMANCE MEASUREMENT FINANCIAL PERFORMANCE MEASUREMENT	R3	primary agri-food producer, agri-food processor and food retailer	>primary agri-food producer >agri-food processor >food retailer	>8 agri-food firms from the agri-food supply chains >3 farmers >3 processors >1 wholesaler >1 retailer	individual perception
Amentae *et al.* (2018)	X	X	X	empirical quantitative study	WILLINGNES TO COLLABORATE AND FACTORS THAT INFLUENCE COLLABORATION ADVANTAGES KEY FACTORS OF MISTRUST (power and oportunism, opportunistic	R5	primary agri-food producer, agri-food cooperative,food traders, food processors and food retailers	>primary agri-food producer >agri-food cooperative >food traders >food processors >food retailers	>113 dairy farmers >6 dairy cooperatives >73 dairy traders >8 dairy processors >3 dairy union >12 supermarkets	individual perception

					behavior, re-putation, cheating, experi-ence..) AGRI-FOOD SUPPLY CHAIN PERFORMANCE MEASUREMENTS (efficiency, flexibility, responsiveness, food quality i food safety)					
Dania *et al.* (2018)	X			conceptual approach			-	n/a	n/a	n/a
Glavee-Geo and Engelseth (2018)		X		empirical qualitative study	INTERPERSONAL TRUST (RELATIONSHIPS EMBODIED BY NORMS, TRUST, AND SOCIAL STRUCTURES (development countries)	R8	food export and freight forwarder	>food export >freight forewarder	>10 seafood-exporting companies >1 major freight forwarder	individual perception
Jacob-John (2018)	X			empirical qualitative study	SUSTAINABILITY AND SOCIAL RESPONSIBILITY IN INTERNATIONAL CONTEXTE	R8	primary agri-food producer, primary agri-food suppliers, food traders/exporets, food retailers/importers	>primary agri-food producer >primary agri-food suppliers >food traders/exporters >food retailers/importers	>20 supply chain actors who operated both the dry food and fresh food sectors > 8 farmers and farm input suppliers >7 trades/exporters >5 international customers/ retailers/importers	individual perception
Mathu and Phetla (2018)	X		X	empirical qualitative study	COLLABORATION STRATEGIES FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT	R6	food processor and food retailer	>food processor >food retailer	>6 fast-moving consumer goods manufacturers >3 leading food retail chain stores	individual perception
Mesic *et al.* (2018)		X	X	empirical quantitative study	RELATIONSHIP QUALITY (satisfaction, trust and commitment) IMPACT OF TRUST ON	R3	primary agri-food producers, agri-food processors and food retailers	> primary agri-food producers >agri-food processors >food retailers	> 189 supply chain members of 65 traditional food supply chains >62 suppliers	dyad into triads

					PERFORMANCE MEASUREMENT PERFORMANCE MEASUREMENT INSTRUMENT FOR TRADITIONAL FOOD SUPPLY CHAINS				>65 processors/focal companies >62 customers	
Montero *et al.* (2018)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R5	primary agri-food producer and agri-food co-operative	>primary agri-food producer	>21 coffee farmers	individual perception
Rota *et al.* (2018)	X			empirical quantitative study	KEY FACTORS FOR COLLABORATION (trust, commitment, information exchange management, category management, and physical distribution)	R2	primary agri-food producers and food distributors	>primary agri-food producers	>16 organic cotton farmers	individual perception
Stone and Rahimifard (2018)	X	X		conceptual approach			-	n/a	n/a	n/a
Sun *et al.* (2018)		X		empirical quantitative study	RELATIONSHIP QUALITY (satisfaction, trust, commitment)	R4	primary agri-food producer and food retailer	>primary agri-food producer	>450 agricultural product suppliers	individual perception
Tröger *et al.* (2018)		X		empirical qualitative study	TRUST IN A PARTNER'S HONESTY AND TRUST IN A PARTNER'S BENEVOLENCE	R4	primary agri-food producer, food traders/distributors and other upstream and downstream stakeholders	>primary agri-food producer >food traders/distributors and other upstream and downstream stakeholders	>27 farmers >14 brokers >23 traders >5 transporters and loaders >2 factory suppliers	individual perception
Utomo *et al.* (2018)	X			conceptual approach			-	n/a	n/a	n/a
van der Werff *et al.* (2018)		X	X	empirical quantitative study	THE IMPORTANCE OF TRUST FOR SUSTAINABLE SC	R6	food processor and food retailer	>food processors	>62 food and beverage companies	individual perception

					FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENT					
Eksoz *et al.* (2019)		X		empirical quantitative study	IMPACT OF TRUST ON RELATIONSHIP DEVELOPMENT	R6	food processor and food retailer	>food processors	>105 food manufacturers	individual perception
Jie and Gengatharen (2019)		X	X	empirical quantitative study	TRUST IN PARTNERS HONESTY AND TRUST IN PARTNERS BENEVOLENCE FINANCIAL PERFORMANCE MEASUREMENTS	R7	food supplier and food retailer	>food retailer	>120 SME retailers in the food sector	individual perception
Kataike *et al.* (2019)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R5	primary agri-food producers, food co-operatives and food processors	>primary agri-food producers >food co-operatives >food processors	>115 dairy farmers (first suppliers) >115 dairy cooperative(second suppliers) >115 processors (buyers)	dyad into triads
Malagueño *et al.* (2019)			X	empirical quantitative and qualitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R4	food producers and food retailers	>food producers	>111 small food and drink producers who supply a large supermarket with products for its local range	individual perception
Martins *et al.* (2019)			X	empirical quantitative study	FINANCIAL AND NON-FINANCIAL PERFORMANCE MEASUREMENTS	R4	primary agri-food producers and spot market buyers	> primary agri-food producers	>269 pig farmers	individual perception
Nakandala and Lau (2019)		X		empirical qualitative study	INTERPERSONAL TRUST	R9	food retailers and their upstream and downstream actors relationship	> food retailers	>12 local fresh food retailers	individual perception
Puska *et al.* (2019)			X	empirical quantitative study	IMPACT OF COLLABORATION (information sharing) ON FINANCIAL AND NON-FINANCIALA PERFROMANCE	R6	food processor and food retailer	>food processors	>135 food companies	individual perception

Msaddak *et al.* (2020)	X	X	empirical quantitative and qualitative study	KEY FACTORS OF MISTRUST (power and oportunism, opportunistic behavior, reputation, cheating, experience..)	R5	primary agri-food producer and agri-food co-operative	>primary agri-food producer	>10 dairy farmers	individual perception
Palacios-Argüello *et al.* (2020)	X		empirical quantitative and qualitative study	IMPACT OF COLLABORATION PRACTICES ON ENVIRONMENTAL PERFORMANCE	R6	food processors and agro-industrial sector relationship	> food processor	>248 food processors	individual perception

APPENDIX B: Chapter 3

Appendix B1. Detailed description of the applied methodological approach

Systematic literature review

Systematic literature review (SLR) with a focus on articles researching *collaboration, trust* and *performance* in AFSC, similar like in papers by Fredriksson (2014), Routroy and Behera (2017), Dania (2018), Luo *et al.* (2018).

Scope of the analysis

The main advantage of BA is its specific approach to collecting and selecting articles for further analysis. For this study, the criteria for including or excluding the articles to be the subjects of BA have also been identified, similarly to Rebs *et al.* (2018), Colicchia *et al.* (2019) and Ali *et al.* (2017). In contrast to the articles with BA that directly import the results of data base search for analysis after Luo *et al.* (2018), we have filtered manually the irrelevant articles on the basis of the inclusion/exclusion criteria (Appendix II), which resulted in the reduced number of articles as well as increased the quality and accuracy of the results.

The first step in SLR is defining the research area by avoiding vagueness and framing the research questions (Rousseau *et al.*, 2008; Ali *et al.*, 2017). Afterwards, the search was carried out in Clarivate Analytics Web of Science Core Collection (WoS CC) as it is the most recognised database in terms of the availability of data, such as access to bibliographic information, authors' abstracts and references cited. Moreover, its coverage dates back to 1990 and most articles are published in English (Aghaei Chadegani *et al.*, 2013). The third step was setting the research criteria for searching the papers on *collaboration, trust and performance* in AFSCs was.

Search strings and selection process

For the purpose of this study, a long list of agri-food related key words (KW) and supply chain-related KW was generated on the basis of the authors' expertise in the AFSCM area. The list contained individual words in singular or plural, such as *collaboration (C), trust (T) and performance (P)*, or words that make up expressions/phrases like *buyer-seller relationship*, *levels of trust*, *collaboration and relationship* that most frequently appear in papers that tackle the researched topic. Based on this, a total of 129 KW[4] were identified and 50 KW for the purpose of BA were selected.

In our next step we created two search phases:

First search phase: TS=('collaboration' OR 'trust' OR 'performance') AND (TS=('supply chain management') AND……..

Second search phase: TS=('collaboration' OR 'trust' OR 'performance') AND (TS=('food supply chain') AND……..

Additionally, both search phases also included and secondary KWs[5] (50 in total), so that a much larger number of papers was generated covering the observed research area.

Study selection and evaluation

The Clarivate Analytics WoS CC database was searched in the period between 1955 and 2020, while the first relevant papers in the field of research were published 1994 (Barney *et al.* (1994), Palmer *et al.* (1994). Thus, choosing the two recent decades in the given time period has enabled observing the evolution of research in food supply chains (Prakash, 2018). The search was carried out between

[4] list of keywords available upon request.
[5] list of secondary KW available upon request.

November 2019 to March 2020. In the initial phase the search included the title, key words and terms and content search. The results were limited to the articles published only in English. The search, study selection and evaluation were carried out by two researchers individually, which has resulted in a total of 8,960 articles (the first number of 8,845 papers found initially was amended by the authors' manual article search and complemented by snowball sampling as in Rebs *et al.* (2018)).

In order to evaluate the papers on the basis of their relevance for the AFSCM field, firstly, a structured review of the exported papers was conducted on the basis of the title, key words, and detail reading and analysis of abstract. Guided by the recommendations from Tranfield *et al.* (2003) and modelled after Ülgen *et al.* (2019) each abstract was examined by at least two authors in order to avoid the subjectivity in selection until both authors have reached a consensus regarding the inclusion or exclusion of the articles in further analysis. The next step was selecting the selected articles[6]. The first sample of 8,960 articles yielded 609 articles for further thorough analysis, and in the second round 163 articles were generated for advanced final analysis.

Paper selected for the bibliometric analysis

Like van der Vaart and van Donk (2008) the researchers evaluated the articles independently by analysing the methodology, research sample, subject and aim of the article, and the other relevant indicators that are in accordance with the set goal and purpose of the research, i.e. research questions. During the analysis, the authors cooperated closely and discussed the classification of the articles in accordance with Fredriksson and Liljestrand (2015). Finally, 69 articles with WoS number[7] were selected for BA.

The bibliometric analysis sample represents the articles from 34 different publication outlets (journals, books, etc.) and includes more than 3,600 references. The majority of the papers were written by multiple authors (total of 160 authors) and only 9 papers were single-authored. For the bibliometric analyses we follow the notions by Aria and Cuccurullo (2017) as well as Zupic and Čater (2015).

Bibliographic network analysis

The analysis includes characterization of the final data set regarding the main information, the most cited authors, papers, sources, and countries as well as institutions by using the software application Biblioshiny of the R-tool bibliometrix (see Aria and Cuccurullo, 2017). We also examined the data set for the occurences of document and source networks by using co-citation analysis in order to detect the conceptual and intellectual foundation of the AFCS research domain. For visualization of the citation and co-citation results Biblioshiny (Aria and Cuccurullo, 2017) as well as VOSviewer (van Eck and Waltman, 2010), which generate analytical as well as well visualized results, were used.

[6] procedure available upon request.
[7] WoS Accession Number is the identifier assigned to the publications indexed in WoSCC.

Appendix B2. Inclusion criteria for study selection and evaluation

No.	Inclusion criteria	Rationale	Fulfilment of criteria
1.	Published in peer-reviewed journals	Limiting the search to peer reviewed journals may facilitate enhancing quality control in search results owing to rigorous process of review that articles are subject to prior to publications in such journals.	Accessing articles from Clarivate Analytics WoS CC database provided fulfilment of this criterion.
2.	Selection of papers without restriction on publication year	Choosing the articles regardless the year of publication has enabled focussing on the evolution development of the research in this field, without introducing the subjective date of the start of the analysis.	Setting „All years“ in the “Timespan” field?
3.	Published in English	English is the dominant language in the field of AFSCM research.	Visual check of language.
4.	Identification of keywords, or selection of criteria for inclusion or exclusion of certain keywords	Selection of keywords is critical, as use of different groups of keywords may influence the results.	Keywords were first selected on the basis of authors' expertise in the area, which resulted in 129 keywords for collection of data collecting. These were then discussed to derive 50 keywords in three predefined groups (group 1: agriculture/farming/organic/food; group 2: supply chain/food supply chain/food system and group 3: relationship/collaboration/trust/performance) that describe or cover the research topic adequately.
5.	Use of Clarivate Analytics WoS CC database search that was altered by using AND / OR operators	Selected 50 secondary keywords were applied to two basic combinations of search string	Selected words and search strings match the set research question.

	(Booleans: AND, OR,)		
6.	Selection of papers with limitation to field of search, i.e. "title-abstract-keywords"	Selected papers are of great relevance, since keywords are required to be present in the title, abstract or keywords.	Required presence of minimally one of three basic keywords („collaboration" „trust", or „performance) in titles, abstracts or keywords, or one keyword from the defined groups that constitute certain search string.
7.	Articles were selected on their focus on CTP in AFSC	Area and main purpose of research is collaboration trust and performance in AFSC	Two co-authors performed independent filtering by detailed reading 163 papers (in-depth investigation of entire text)
8.	Each selected article was required a WOS number	WoS Accession Number is the identifier assigned to the publications indexed in WoSCC.	Visual check of papers in Clarivate Analytics WoS CC resulted in final 69 papers for bibliometric analysis.

Appendix B3. References for citation and co-citation analysis

Batt, P. J. (2003a), "Building trust between growers and market agents", *Supply Chain Management: An International Journal*, Vol. 8 No. 1, pp.65-78. https://doi.org/10.1108/13598540310463378

Batt, P. J. (2003b), "Examining the performance of the supply chain for potatoes in the Red River Delta using a pluralistic approach", *Supply Chain Management: An International Journal*, Vol. 8 No. 5, pp. 442-454. https://doi.org/10.1108/13598540310500277

Hingley, M. K. (2005a), "Power imbalanced relationships: cases from UK fresh food supply", *International Journal of Retail & Distribution Management*, Vol. 33 No. 8, pp. 551-569. DOI 10.1108/09590550510608368

Hingley, M. K. (2005b), "Power to all our friends? Living with imbalance in supplier–retailer relationships", *Industrial Marketing Management*, Vol. 34 No. 8, pp. 848-858. doi:10.1016/j.indmarman.2005.03.008

Fearne, A., Barrow, S. and Schulenberg, D. (2006), "Implanting the benefits of buyer-supplier collaboration in the soft fruit sector", *Supply Chain Management: An International Journal*, Vol. 11 No. 1, pp. 3-5. http://dx.doi.org/10.1108/13598540610642402

Aramyan, L. H., Lansink, A. G. O., Van Der Vorst, J. G. and Van Kooten, O. (2007), "Performance measurement in agri-food supply chains: a case study", *Supply Chain Management: An International Journal*, Vol. 12 No. 4, pp. 304–315. DOI 10.1108/13598540710759826

Ghosh, A. and Fedorowicz, J. (2008), "The role of trust in supply chain governance", *Business Process Management Journal*, Vol. 14 No. 4, pp. 453-470. DOI 10.1108/14637150810888019

Hingley, M.K., Sodano, V., and Lindgreen, A. (2008), “Differentiation strategies in vertical channels: a case study from the market for fresh produce”, *British Food Journal*, Vol. 110, No. 1, pp. 42-61. (ISSN 0007-070X)

Leat, P. and Revoredo-Giha, C. (2008),"Building collaborative agri-food supply chains", *British Food Journal*, Vol. 110 Nos. 4/5 pp. 395 – 411. http://dx.doi.org/10.1108/00070700810868924

Mikkola, M. (2008), "Coordinative structures and development of food supply chains", *British Food Journal*, Vol. 110 No. 2, pp. 189-205. DOI 10.1108/00070700810849907

Vlachos, I. P., Bourlakis, M. and Karalis, V. (2008), "Manufacturer–retailer collaboration in the supply chain: empirical evidence from the Greek food sector", *International Journal of Logistics Research and Applications*, Vol. 11 No. 4, pp. 267-277. http://dx.doi.org/10.1080/13675560701768517

Lu, H., Feng, S., Trienekens, J. H. and Omta, S. W. F. (2008), "Performance in vegetable supply chains: the role of Guanxi networks and buyer–seller relationships", *Agribusiness: An International Journal*, Vol. 24 No. 2, pp. 253-274. DOI: 10.1002/agr.20158

Vieira, L. M. and Traill, W. B. (2008), "Trust and governance of global value chains: The case of a Brazilian beef processor", *British Food Journal*, Vol. 110 No. 4-5, pp. 460-473. DOI 10.1108/00070700810868960

Kottila, M.-R. and Rönni, P. (2008), "Collaboration and trust in two organic food chains", *British Food Journal*, Vol. 110 No. 4/5, pp. 376-394., https://doi.org/10.1108/00070700810868915

Mena, C., Humphries, A. and Wilding, R. (2009), "A comparison of inter-and intra-organizational relationships", *International Journal of Physical Distribution & Logistics Management*, Vol. 39 No. 9, pp. 762-784. DOI 10.1108/09600030911008193

Vieira, J., Yoshizaki, H. and Ho, L. (2009), "Collaboration intensity in the Brazilian supermarket retail chain", *Supply Chain Management: An International Journal*, Vol. 14 No. 1, pp. 11–21. DOI 10.1108/13598540910927269

Canavari, M., Fritz, M., Hofstede, G. J., Matopoulos, A. and Vlachopoulou, M. (2010), "The role of trust in the transition from traditional to electronic B2B relationships in agri-food chains", *Computers and electronics in agriculture*, Vol. 70 No. 2, pp. 321-327. doi:10.1016/j.compag.2009.08.014

Hofstede, G. J., Fritz, M., Canavari, M. and Oosterkamp, E. (2010), "Towards a cross-cultural typology of trust in B2B food trade", *British Food Journal*, Vol. 112 No. 7, pp. 671-687. https://doi.org/10.1108/00070701011058226

Boniface, B., Gyau, A., Stringer, R. and Umberger, W. J. (2010), "Building producer loyalty in Malaysia's fresh milk supply chain", *Australasian Agribusiness Review*, Vol. 18, pp. 1-29.
DOI: 10.22004/ag.econ.114423

Zhang, X. and Hu, D. (2011), "Farmer-buyer relationships in China: the effects of contracts, trust and market environment", *China Agricultural Economic Review*, Vol. 3 No. 1, pp. 42-53. http://dx.doi.org/10.1108/17561371111103534

Bezuidenhout, C. N., Bodhanya, S. and Brenchley, L. (2012), "An analysis of collaboration in a sugarcane production and processing supply chain", *British Food Journal*, Vol. 114 No. 6, pp.880-895. https://doi.org/10.1108/00070701211234390

Boniface, B. (2012), "Producer relationships segmentation in Malaysia's milk supply chains". *British Food Journal*, Vol. 114 No. 10, pp. 1501-1516. https://doi.org/10.1108/00070701211263046

Viitaharju, L. and Lähdesmäki, M. (2012), "Antecedents of trust in asymmetrical business relationships", *Marketing Intelligence & Planning*, Vol. 30 No. 5, pp. 567-58. DOI 10.1108/02634501211251061

Suvanto, H. (2012), "Constructing a typology of trust in asymmetrical food business relationships", *British Food Journal*, Vol. 114 No. 7, pp. 926-943. https://doi.org/10.1108/00070701211241536

Singh, R., Sandhu, H. S., Metri, B. A. and Kaur, R. (2013), "Modeling supply chain performance: a structural equation approach", *International Journal of Information Systems and Supply Chain Management (IJISSCM)*, Vol. 6 No. 4, pp. 18-41. DOI: 10.4018/ijisscm.2013100102

Zhang, M. and Huo, B. (2013), "The impact of dependence and trust on supply chain integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 43 No. 7, pp. 544-563. DOI 10.1108/IJPDLM-10-2011-0171

Fischer, C. (2013), "Trust and communication in European agri-food chains", *Supply Chain Management: An International Journal*, Vol. 18 No. 2, pp. 208-218. https://doi.org/10.1108/13598541311318836

Jie, F., Parton, K. A. and Cox, R. J. (2013), "Linking supply chain practices to competitive advantage", *British Food Journal*, Vol. 115 No. 7, pp. 1003-1024. http://dx.doi.org/10.1108/BFJ-10-2010-0181

Hamzaoui-Essoussi, L., Sirieix, L. and Zahaf, M. (2013), "Trust orientations in the organic food distribution channels: A comparative study of the Canadian and French markets", *Journal of Retailing and Consumer Services*, Vol. 20 No. 3, pp. 292-301. https://doi.org/10.1016/j.jretconser.2013.02.002

Lobo, A., Leckie, C. and Li, C. (2013), "The impact of guanxi, xinyong and buyer collaboration on the loyalty and financial performance of vegetable farmers in China", *Asia Pacific Journal of Marketing and Logistics*. Vol. 25 No. 5, pp. 745-764. https://doi.org/10.1108/APJML-01-2013-0018

Kühne, B., Gellynck, X. and Weaver, R. D. (2013), "The influence of relationship quality on the innovation capacity in traditional food chains", *Supply Chain Management: An International Journal*, Vol. 18 No. 1, pp. 52-65. https:// doi.org/10.1108/13598541311293177

Bhagat, D. and Dhar, U. R. (2014), "Relationship Dynamics in the Pineapple Supply Chain: Empirical Evidence from the Garo Hills of Meghalaya", *Global Business Review*, Vol. 15 No. 4, pp. 747-765. DOI: 10.1177/0972150914543410

Schulze-Ehlers, B., Steffen, N., Busch, G. and Spiller, A. (2014), "Supply chain orientation in SMEs as an attitudinal construct", *Supply Chain Management: An International Journal*, Vol. 19 No. 4, pp. 395-412. http://dx.doi.org/10.1108/SCM-07-2013-0241

Ding, M. J., Jie, F., Parton, K. A. and Matanda, M. J. (2014), "Relationships between quality of information sharing and supply chain food quality in the Australian beef processing industry". *The International Journal of Logistics Management*, Vol. 25 No. 1, pp. 85-108. https://doi.org/10.1108/IJLM-07-2012-0057

Zander, K. and Beske, P. (2014), "Happy growers! relationship quality in the German organic apple chain", *International Food and Agribusiness Management Review*, Vol. 17 No. 3, pp. 1-20. 10.22004/ag.econ.183498

Anastasiadis, F. and Poole, N. (2015), "Emergent supply chains in the agrifood sector: insights from a whole chain approach", *Supply Chain Management: An International Journal*, Vol. 20 No. 4, pp. 353 – 368. http://dx.doi.org/10.1108/SCM-08-2014-0259

Touboulic, A., & Walker, H. (2015), "Love me, love me not: A nuanced view on collaboration in sustainable supply chains", *Journal of Purchasing and Supply Management*, Vol. 21 No. 3, pp. 178-191. https://doi.org/10.1016/j.pursup.2015.05.001

Maglaras, G., Bourlakis, M. and Fotopoulos, C. (2015), "Power-imbalanced relationships in the dyadic food chain: An empirical investigation of retailers' commercial practices with suppliers", *Industrial Marketing Management*, Vol. 48 (July), pp. 187-201. https://doi.org/10.1016/j.indmarman.2015.03.014

Gorton, M., Angell, R., Dries, L., Urutyan, V., Jackson, E. and White, J. (2015), "Power, buyer trustworthiness and supplier performance: Evidence from the Armenian dairy sector", *Industrial Marketing Management*, Vol. 50 (October), pp. 69-77. https://doi.org/10.1016/j.indmarman.2015.05.024

Dania, W. A. P., Xing, K. and Amer, Y. (2016), "Collaboration and sustainable agri-food supply chain: a literature review", In *MATEC Web of Conferences* (Vol. 58, p. 02004). EDP Sciences, DOI: 10.1051/matecconf/2016 802004

Formentini, M. and Romano, P. (2016), "Towards supply chain collaboration in B2B pricing", *International Journal of Operations & Production Management*, Vol. 36 No. 7, pp. 734-756. https://doi.org/10.1108/IJOPM-03-2015-0124

Aji, J. M. M. (2016), "Exploring farmer-supplier relationships in the East Java seed potato market", *Agriculture and Agricultural Science Procedia*, Vol. 9, pp. 83-94. doi: 10.1016/j.aaspro.2016.02.130

Mutonyi, S., Beukel, K., Gyau, A., Hjortsø, C. N. and Griffith, C. (2016), "Price satisfaction and producer loyalty: the role of mediators in business to business relationships in Kenyan mango supply chain", *British Food Journal*, Vol. 118 No. 5, pp. 1067-1084. http://dx.doi.org/10.1108/BFJ-09-2015-0319

Odongo, W., Dora, M., Molnar, A., Ongeng, D. and Gellynck, X. (2016), "Performance perceptions among food supply chain members", *British Food Journal*, Vol. 118 No. 7, pp. 1783-1799. http://dx.doi.org/10.1108/BFJ-10-2015-0357

Bandara, S., Leckie, C., Lobo, A. and Hewege, C. (2017), "Power and relationship quality in supply chains", *Asia Pacific Journal of Marketing and Logistics*, Vol. 29 No. 3, pp. 501-518. https://doi.org/10.1108/APJML-09-2016-0165

Banerjee, M. and Mishra, M. (2017), "Retail supply chain management practices in India: A business intelligence perspective". *Journal of Retailing and Consumer Services*, Vol. 34 (January), pp. 248-259. http://dx.doi.org/10.1016/j.jretconser.2015.09.009i

Odongo, W., Dora, M. K., Molnar, A., Ongeng, D. and Gellynck, X. (2017), "Role of power in supply chain performance: evidence from agribusiness SMEs in Uganda", *Journal of Agribusiness in Developing and Emerging Economies*, Vol. 7 No. 3, pp. 339-354. https://doi.org/10.1108/JADEE-09-2016-0066

Susanty, A., Bakhtiar, A., Jie, F. and Muthi, M. (2017), "The empirical model of trust, loyalty, and business performance of the dairy milk supply chain", *British Food Journal*, Vol. 119 No. 12, pp. 1-26. DOI 10.1108/BFJ-10-2016-0462

Uddin, N. (2017), "Inter-organizational relational mechanism on firm performance". *Industrial Management & Data Systems*, Vol. 117 No. 9, pp. 1934-1953. DOI 10.1108/IMDS-03-2016-0093

Utomo, D. S., Onggo, B. S. and Eldridge, S. (2018), "Applications of agent-based modelling and simulation in the agri-food supply chains", *European Journal of Operational Research*, Vol. 269 No. 3, pp. 794-805. https://doi.org/10.1016/j.ejor.2017.10.041

Brooks, S., Leaver, A., Spence, M., Elliott, C. T. and Dean, M. (2017), "Pragmatic engagement in a low trust supply chain: Beef farmers' perceptions of power, trust and agency", *Competition & Change*, Vol. 21 No. 2, pp. 114 131. https://doi.org/10.1177/1024529417691053

Amentae, T. K., Gebresenbet, G. and Ljungberg, D. (2018), "Examining the interface between supply chain governance structure choice and supply chain performances of dairy chains in Ethiopia", *International Food and Agribusiness Management Review*, Vol. 21 No. 8, pp. 1061-1082. https://doi.org/10.22434/IFAMR2018.0001

Glavee-Geo, R. and Engelseth, P. (2018), "Seafood export as a relationship-oriented supply network". *British Food Journal,* Vol. 120 No. 4, pp. 914-929. https://doi.org/10.1108/BFJ-04-2017-0249

Jacob-John, J. (2018), "Adherence to responsibility in organic dry food supply chains", *European Business Review*, Vol. 30 No. 1, pp. 26-37. https://doi.org/10.1108/EBR-01-2016-0025

Stone, J. and Rahimifard, S. (2018), "Resilience in agri-food supply chains: a critical analysis of the literature and synthesis of a novel framework", *Supply Chain Management: An International Journal,* Vol. 23 No. 3, pp. 207-238. https://doi.org/10.1108/SCM-06-2017-0201

Mathu, K. and Phetla, S. (2018), "Supply chain collaboration and integration enhance the response of fast-moving consumer goods manufacturers and retailers to customer's requirements", *South African Journal of Business Management*, Vol. 49 No. 1, pp. 1-8. a192. https://doi.org/ 10.4102/sajbm.v49i1.192

Mesic, Ž., Molnár, A. and Cerjak, M. (2018), "Assessment of traditional food supply chain performance using triadic approach: the role of relationships quality", *Supply Chain Management: An International Journal*, Vol. 23 No. 5, pp. 396-411. https://doi.org/10.1108/SCM-10-2017-0336

Dania, W. A. P., Xing, K. and Amer, Y. (2018), "Collaboration behavioural factors for sustainable agri-food supply chains: A systematic review", *Journal of Cleaner Production*, Vol. 186 (June), pp. 851-864. https://doi.org/10.1016/j.jclepro.2018.03.148

Tröger, K., Lelea, M. A. and Kaufmann, B. (2018), "The Fine Line between Trusting and Cheating: Exploring Relationships between Actors in Ugandan Pineapple Value Chains", *The European Journal of Development Research*, Vol. 30 No. 5, pp. 823-84. https://doi.org/10.1057/s41287-018-0134-7

Sun, Y., Liu, Z. and Yang, H. (2018), "How Does Suppliers' Fairness Affect the Relationship Quality of Agricultural Product Supply Chains?", *Journal of Food Quality*, Vol. 5, pp. 1-15. DOI: 10.1155/2018/9313068

van der Werff, S., Trienekens, J., Hagelaar, G. and Pascucci, S. (2018), "Patterns in sustainable relationships between buyers and suppliers: evidence from the food and beverage industry", *International Food and Agribusiness Management Review,* Vol. 21 No 8, pp. 1023-1043. DOI: 10.22434/IFAMR2017.0059

Rota, C., Pugliese, P., Hashem, S. and Zanasi, C. (2018), "Assessing the level of collaboration in the Egyptian organic and fair trade cotton chain", *Journal of Cleaner Production*, Vol. 170 (January), pp. 1665-1676. doi: 10.1016/ j.jclepro.2016.10.011.

Jie, F. and Gengatharen, D. (2019), "Australian food retail supply chain analysis", *Business Process Management Journal*, Vol. 25 No. 2, pp. 271-287. https://doi.org/10.1108/BPMJ-03-2017-0065

Kataike, J., Aramyan, L. H., Schmidt, O., Molnár, A. and Gellynck, X. (2019), "Measuring chain performance beyond supplier–buyer relationships in agri-food chains", *Supply Chain Management: An International Journal*, Vol. 24 No. 4, pp. 484-497. https:// doi.org/10.1108/SCM-03-2018-0097

Malagueño, R., Gölgeci, I. and Fearne, A. (2019), "Customer categorization, relational justice and SME performance in supermarket supply chains", *Supply Chain Management: An International Journal,* Vol. 24 No. 3, pp. 417-429. https://doi.org/10.1108/SCM-06-2018-0237

Nakandala, D. and Lau, H. C. (2019), "Innovative adoption of hybrid supply chain strategies in urban local fresh food supply chain", *Supply Chain Management: An International Journal*., Vol. 24 No. 2, pp. 241-255. https://doi.org/10.1108/ SCM-09-2017-0287

Puska, A., Stević, Ž. and Šadić, S. (2019), "Impact of sharing information with supplier and buyer on the organizational performance of food companies in Bosnia and Herzegovina", *Časopis za ekonomiju i tržišne komunikacije*, Vol. 9 No. 1, pp. 33-52. DOI: 10.7251/EMC1901

Eksoz, C., Mansouri, S. A., Bourlakis, M. and Önkal, D. (2019), "Judgmental adjustments through supply integration for strategic partnerships in food chains", *Omega*, Vol. 87, pp. 20-33. https://doi.org/10.1016/j.omega.2018.11.007

Martins, F. M., Trienekens, J. and Omta, O. (2019), "Implications of horizontal and vertical relationships on farmers performance in the Brazilian pork industry", *Livestock Science*, Vol. 228 (October), pp. 161-169. https://doi.org/10.1016/j.livsci.2019.08.013

Palacios-Argüello, L., Gondran, N., Nouira, I., Girard, M. A. and Gonzalez-Feliu, J. (2020), "Which is the relationship between the product's environmental criteria and the product demand? Evidence from the French food sector", *Journal of Cleaner Production*, Vol. 244, 118588. doi: https:// doi.org/10.1016/j.jclepro.2019.118588

APPENDIX C: Chapter 4

Appendix C. Similarities and differences in the perceptions of the first and second category of organic food producers

Metrics for Collaboration Items	SIMILARITIES	DIFFERENCES	
	1st and 2nd group of organic food producers	1st group of organic food producers	2nd group of organic food producers
INTER-ORGANIZATIONAL COLLABORATION (type of collaboration, formal/informal, reliability, positive past collaboration)	- Positive past collaboration significantly affects the acquisition of trust - Retailers do not make sacrifices for producers - Collaboration with small retailers is often informal and based on trust - Collaboration with retail chains is uncertain - Collaboration is based on product quality - No common goals - Satisfied with the collaboration with retailers - Collaboration is not price conditioned	- Collaboration is formal / contractual - Clearly defined delivery times and payment times - Reliability - Uncertainty of collaboration with retail chains – contracts are undefined - There are surpluses or deficits - Risk and uncertainty of production - Quality requirements – strict standardization	- Orders have no continuity - unreliability - Clearly defined delivery and payment times - There is flexibility, but not security for planned production - No dependence on retailers
QUALITY COMMUNICATION (frequency, quantity, quality, satisfaction)	- Small retailers are less informed - First contacts are often established at eco-fairs - Communication depends on the type of product (fresh or processed) and the season	- Quality, open and frequent communication - Maintained on the success of mutual collaboration - Timely and dynamic – especially when selling fresh products - Communication on a daily basis, by phone or by email - It is important to achieve a personal face-to-face communication	- Not much communication (and even less online) - Informal collaboration also results in informal communication - It does not significantly affect the success of joint collaboration
INFORMATION, RISK, KNOWLEDGE AND RESOURCE SHARING (transparency between partners)	- Sharing information on market regulations - Sharing demand information - Retailer does not inform the organic food producer about the changes in retail prices - No sharing of information and knowledge about organic production - Retailers are not interested in participating in development of new product	- Retailer defined my price, and the margin and margin are very different (from 10 to 40%) and do not share this information with organic food producers – no transparency - Information on product quality is exchanged - Sharing knowledge about market factors - There is no interest of retailer to participate	- There is not much communication, there is no exchange of information - A more personalized relationship is established with small retailers - guanxi. - There is a better interaction with small retailers in terms of demand information for our products

	- Customers mostly do not provide financial assistance - No sharing of resources such as warehousing, transportation etc. - No perception or common sharing of production risk - No sharing of business performance information	in the development of new product - The level of formality and frequency of information exchange depends on the type of retailer with whom it cooperates - Sometimes there is a joint promotion	- Information that is important for the relationship quality - Retailers do not provide financial assistance - A joint promotion is rarely done
LONG-TERM ORIENTATION (common plans and interests)	- We have no joint plans - There is no collaboration in the development of new products - Open for collaboration with other retailers - They expect to collaborate more intensively with retailer in the future	- They are continuously working on long-term collaboration - Both sides invest significant efforts in the development of quality long-term relations - They often discuss mutual expectations - The retailer and I are planning future demand together	- They do not work continuously to improve long-term collaboration - They do not depend on the long-term orientation - They do not plan future demand together - Dependence on production volumes - Trust is the basis for long-term collaboration - Negative impact of too high margins on long-term collaboration - They rarely discuss mutual expectations
QUALITY OF RELATIONSHIP (existence of personal connections, honesty, goodwill, customer reliability, mutual respect, interpersonal collaboration.)	- Depends on the quality of products - After many years of collaboration, interpersonal trust is developing (guanxi) - The relationship with retail chains is not guaranteed and permanent - Retailers are not sufficiently familiar with organic food production - Retailer has a good reputation on the market - Retailer mostly meets expectations - In some cases, it can happen that the retailer does not keep its promise, or it makes false claims - They are not completely satisfied with the price - Retailers do not know well the specificities of organic production and organic products, and do	- Retailer is reliable - Most of them are satisfied with quality of relationship - Retailers take into consideration the interests of both parties - Development of professionalism of organic food producers - We are loyal and committed to the retailer - They are planning future collaboration - Infrastructure development is also crucial - The customer is ready to help in collaboration - Problems are solved promptly - They are dedicated to the quality of relationships and the	- Quantity planning needs to be worked on - Depending on the retailer commitment to organic food products and production - They are mostly loyal to most retailers - Flexible relationships with small retailers are based on interpersonal trust - They are less committed to the quality of the relationship and collaboration with the customer

	not use them enough in promotion - They are ready to sell to alternative buyers	collaboration with the retailer	
STRENGHTH / ADDICTION / OPPORTUNISM (domination, bargaining power)	- For retail chains, the amount of production can affect bargaining power - Dependence on retailers is often conditioned by the amount of production - The buyer has more bargaining power in the supply chain, but not complete - The buyer not only follows his interests, but respects the tradition and belief in the supplier	- Quality products also ensure greater bargaining power - The retailer must comply with the retailer' contracts - Dependence on retailer is often conditioned by the type of product - It is not a contractually dependent relationship	- Smaller retailer does not dominate so much, they are more flexible - They are small and do not have the power to negotiate, but do not depend on retailers - They would never rely solely on selling through a retailer
OVERALL PERFORMANCE (business efficiency, individual and entire chain performance, support among chain members, mutual benefits, competitiveness.)	Collaboration and trust: - Significantly affected the satisfaction of customers and end consumers - Had very little effect on improving the business processes of producers (collaboration and optimization) - Did not significantly affect the reduction of total costs (e.g. logistics) of both parties - Did not significantly affect flexibility	- Professionalism of the organic food producer - Better production planning - Affects the expansion of family farm and employment - At retail chain level, products of domestic organic food producers are poorly visible and recognizable to consumers Collaboration and trust have significantly affected: - improved communication - to reduce business risks - on optimization of the use of resources in the supply chain and optimize stocks - to reduce the opportunistic behavior of retailer - on demand planning - on the speed of resolving complaints - on forming the lower price than competitors - on the introduction and /or improvement of electronic commerce - profit growth - better competitive advantage	- They cannot assess the impact on cost reduction, profit growth due to the small share in this sales chain (about 20%) - This channel is not crucial for their business success - Due to the small presence in that chain, there is no significant competitive advantage Collaboration and trust have significantly affected: - reliability and speed of delivery - on lead time Collaboration and trust did not significantly affect: - optimizing the use of resources in the supply chain and optimizing inventories - demand planning - speed of resolving complaints - formation of a lower price than competitors - reduction of opportunistic behavior of retailers - improving product quality - quality of communication between the organic

		- to improve product quality Collaboration and trust did not significantly affect: - on reliability and speed of delivery - on lead time	food producer and retailer - risk reduction in business - introduction and / or improvement of electronic retailing - Collaboration with retailers could affect performance, if they had larger quantities of products and thus would expand in the market (they would go beyond the local and regional market) - Collaboration is more successful with small retailers at the local and regional level, especially when it comes to fresh products (short supply chain).
TRUST	- Trust in the sincerity of customer advice - Trust in the expertise of the retailer - Retailer generally keeps its promises - Retailer is mostly honest - Trust is based on long-term collaboration - Recommendation to other suppliers to collaborate with this retailer	- Trust in the information and retail data - Due to the high integrity in the supply chain - Retailer treats them fairly and justly - Evan in case of uncertain circumstances, they will remain loyal to its customers - They completely trust their customer	- They do not fully believe in the information and dana that retailer shares with them - Retailer is generally fair and honest - Problems can impair customer loyalty - They partly trust their customer

APPENDIX D: Chapter 5.

Appendix D

Table 1. Measurement scales

Construct	Items	Sources
INTER-ORGANISATIONAL COLLABORATION	MS1_Collaboration with the retailer is of great importance to my farm.	Mesić et.al. (2018); Susanty et al. (2017); Zhang et.al. (2013); Boniface (2012); Zhang and Hu (2011); Gellynck et al. (2011); Schulze-Ehlers et al., 2006); Batt, (2003)
	MS2_I am satisfied with the collaboration with my retailer.	
	MS3_My collaboration with the retailer is contractual, which suits me entirely.	
	MS4_I do not have a strictly defined contract with the retailer, which suits me entirely.	
	MS5_Doing business with my retailer is not risky for my business.	
	MS6_I am flexible and adapting to the retailer's needs.	
	MS7_Retailer always honours our agreement.	
	MS8_Retailer shows understanding for the problems that arise during production and distribution processes.	
	MS9_I put in a maximum effort to maintain a high quality of collaboration with the retailer.	
	MS10_Activities between me and the retailer are well-coordinated.	
	MS11_My retailer always considers the best interests of both parties.	
	MS12_I would recommend other farmers to become suppliers for my retailer.	
	MS13_I trust the expertise of my retailer.	
COMMUNICATION	KOM1_I often communicate with my retailer.	Bandara et al. (2017); Fischer (2013); Puspitawati et al. (2013); Kottila and Ronn (2008); Schulze et al. (2006); Chen et.al. (2004)
	KOM2_I find important that my retailer and I communicate as often as possible.	
	KOM3_Communication between me and my retailer is mostly formal.	
	KOM4_Communication between me and my retailer is often informal.	
	KOM5_My retailer and I mostly communicate indirectly (e.g., online).	
	KOM6_I find important that my retailer and I communicate face to face as often as possible.	
	KOM7_My retailer is always open and ready for communication.	
	KOM8_Communication between me and my retailer is of very high quality (open and honest).	
	KOM9_Retailer and I often discuss matters important to our business.	
	KOM10_I have good communication with the employees of my retailer.	
	KOM11_When disagreements arise between the retailer and me, we try to resolve them to mutual satisfaction.	
	KOM12_Retailer and I often plan and evaluate the effectiveness of promotional activities together.	
	KOM13_Communication between me and my retailer allows us to adapt products to meet consumer needs.	
INFORMATION SHARING	INF1_Retailer timely shares all necessary information with me.	Amentae et al. (2018); Mesić et al. (2018); Zaheer and Trkman (2017); Bandara et al. (2017); Gellynck et al. (2011); Boniface et al. (2010); Kottila et al. (2009); Chen et.al. (2004); Batt (2003); Mentzer et.al. (2001)
	INF2_Retailer and I regularly exchange information about changes that could affect our business.	
	INF3_I find that sharing information with the retailer can improve my operational efficiency.	
	INF4_I find that sharing information with the retailer can improve mutual financial performances .	
	INF5_I receive timely information from the retailer about changes in demand for my product(s).	
	INF6_I am well-informed about the retailer's business policies.	
	INF7_Retailer regularly informs me about changes in their retail prices.	
	INF8_Retailer promptly informs me about expected delivery schedule for my product.	
	INF9_Retailer and I mutually share information about the quality management system and traceability procedures.	
	INF10_Retailer regularly informs me about the needs and satisfaction of consumers of my products.	
	INF11_Retailer and I exchange feedback on business performance.	
LONG-TERM ORIENTATION	DP1_Retailer and I aim for long-term business.	Bandara et al. (2017); Aji (2016); Lobo et al. (2013); Boniface (2012); Lu et al., (2012); Zhang and Hu (2011); Boniface et.al. (2010); Kottila et.al. (2009); Chen i Paulraj (2004);
	DP2_I continuously work with the retailer on future demand planning.	
	DP3_Retailer and I put in significant efforts in building high-quality long-term relationships.	
	DP4_I expect an increase in business volume with the retailer in the next few years.	
	DP5_Even though I have the opportunity to collaborate with other retailers, I will continue to do business with this retailer.	
	DP6_I believe that my retailer will be successful in the long term.	
	DP7_My retailer has a good market reputation, i.e., among consumers.	
TRANSPARENCY	TRANS1_I assume that larger suppliers receive better terms than I do.	Zhang et al. (2016); Mutonyi et al. (2016);
	TRANS2_Retailer offers me fair and reasonable prices for my products.	

	TRANS3_The terms related to delivery, payment, and other business relationships I have with retailer are clearly defined.	Boniface (2012); Puspitawati et al. (2011)
	TRANS4_ The data about prices shared with me by the retailer are complete, accurate, and transparent.	
	TRANS5_ I know in advance the price at which my products will be purchased.	
	TRANS6_ My retailer shares their knowledge and experience with me.	
	TRANS7_The business information I receive from the retailer are comprehensive and accurate.	
BUSINESS PROCESS IMPROVEMENT	POSLP1_ Due to the trust between me and my retailer, operational efficiency has improved.	Bandara et al. (2017); Jie et al. (2013); Trienekens et al. (2012); Burgess et al. (2006); Batt (2003)
	POSLP2_Due to the trust between me and my retailer, the retailer confirms orders more quickly.	
	POSLP3_Due to the trust between me and my retailer, I am able to plan production better.	
	POSLP4_Due to the trust between me and my retailer, business processes are better coordinated and optimized.	
	POSLP5_Due to the trust between me and my retailer, better flexibility in delivery quantities is achieved.	
QUICK RESPONSE TO CUSTOMER NEEDS	ECR1_Due to the trust between me and my retailer, we resolve consumer complaints more quickly.	Bandara et al. (2017); Odongo et al. (2016); Jie et al. (2013); Batt (2003)
	ECR2_Due to the trust between me and my retailer, consumers are more satisfied.	
	ECR3_Due to the trust between me and my retailer, I deliver orders to the retailer on time.	
	ECR4_Due to the trust between me and my retailer, I provide a more reliable delivery to the retailer.	
COST REDUCTION IN THE SUPPLY CHAIN	TROŠ1_Due to the trust between me and my retailer, my overall operating costs have been reduced.	Mesić et al. (2018); Bandara et al. (2017); Odongo et al. (2016); Chen i Paulraj (2004)
	TROŠ2_Due to the trust between me and my retailer, my logistic operating costs have been reduced.	
	TROŠ3_ Due to the trust between me and my retailer, my inventory holding costs have been reduced.	
	TROŠ4_Due to the trust between me and my retailer, my product return costs have been reduced.	
	TROŠ5_Due to the trust between me and my retailer, my transportation costs have been reduced.	
COMPETITIVE ADVANTAGE IN THE SUPPLY CHAIN	KP1_ Due to the trust between me and my retailer, I am able to offer lower prices than competitors.	Lees i Nuthall (2015); Jie et.al. (2013); Suvanto (2012); Burgess et al. (2006); Schulze et al. (2006); Chen i Paulraj (2004)
	KP2_Due to the trust between me and my retailer, I achieve a higher level of product quality.	
	KP3_Trust between me and my retailer results in better health and safety of the product.	
	KP4_Due to the trust between me and my retailer, I gain better competitive advantage.	
	KP5_Due to the trust between me and my retailer, I achieve better return on investment.	
MUTUAL BENEFITS IN THE SUPPLY CHAIN	ZK1_Due to the trust between me and my retailer, I achieve increased sales revenue.	Mesić et al. (2018); Bandara et al. (2017); Hartmann et al. (2015); Kache i Seuring (2014); Kühne et al. (2013); Gellynck et.al. (2011)
	ZK2_Due to the trust between me and my retailer, I achieve a higher profit margin.	
	ZK3_Due to the trust between me and my retailer, the risk in my business has been reduced.	
	ZK4_Due to the trust between me and my retailer, I have introduced and/or improved online retailing.	
	ZK5_Due to the trust between me and my retailer, I achieve better cash flow.	
	ZK6_Due to the trust between me and my retailer, communication between us has improved.	
OVERALL SUPPLY CHAIN EFFICIENCY	UČINK1_Trust between me and my retailer affects mutually better financial indicators.	Jie et al. (2013); Burgess et al. (2006)
	UČINK2_Trust between me and my retailer affects the stability of our business.	
	UČINK3_Trust between me and my retailer affects better environmental performance of the supply chain.	
	UČINK4_Trust between me and my retailer affects our mutual reputation.	
TRUST	TRUST1_Retailer respects my beliefs and tradition.	Bandara et al. (2017); Mutonyi et al. (2016); Boniface, (2012); Boniface et al. (2010); Schulze et al. (2006); Batt (2003)
	TRUST2_I have no doubt about the retailer's motives.	
	TRUST3_Retailer has been fair in negotiations with me.	
	TRUST4_I trust my retailer.	
	TRUST5_Retailer trusts me as a supplier.	
	TRUST6_I consider my retailer a business partner.	
	TRUST7_The relationship between me and my retailer is characterized by strong personal connections.	
	TRUST8_I trust the information that my retailer shares with me.	
	TRUST9_If something goes wrong, I will remain loyal to my retailer.	
	TRUST10_From my long-term experience, I know I can trust my retailer.	

Appendix D

Table 2. Results of convergent validity and construct reliability for OAF producers

	External load*	Cronbach alpha coefficient	Composite reliability	AVE
DP				
DP1	0.850	0.890	0.914	0.603
DP2	0.790			
DP3	0.814			
DP4	0.793			
DP5	0.698			
DP6	0.727			
DP7	0.751			
ECR				
ECR1	0.886	0.943	0.959	0.853
ECR2	0.928			
ECR3	0.951			
ECR4	0.929			
INF				
INF10	0.740	0.896	0.916	0.527
INF11	0.797			
INF2	0.773			
INF3	0.673			
INF4	0.417			
INF5	0.791			
INF6	0.711			
INF7	0.787			
INF8	0.652			
INF9	0.827			
KOM				
KOM1	0.769	0.901	0.919	0.541
KOM10	0.848			
KOM11	0.815			
KOM12	0.676			
KOM13	0.781			
KOM2	0.406			
KOM4	0.459			
KOM7	0.803			
KOM8	0.842			
KOM9	0.801			
KP				
KP1	0.765	0.904	0.927	0.718
KP2	0.855			
KP3	0.837			
KP4	0.882			
KP5	0.890			
MS				
MS1	0.495	0.907	0.924	0.537
MS10	0.748			
MS11	0.901			
MS12	0.881			
MS13	0.774			
MS2	0.826			
MS3	0.546			
MS5	0.458			
MS6	0.568			
MS7	0.822			
MS8	0.851			
POSLP				

POSLP1	0.875	0.931	0.948	0.786
POSLP2	0.875			
POSLP3	0.895			
POSLP4	0.947			
POSLP5	0.836			
TRANS				
TRANS2	0.794	0.834	0.879	0.549
TRANS3	0.716			
TRANS4	0.784			
TRANS5	0.606			
TRANS6	0.690			
TRANS7	0.834			
TROŠ				
TROŠ1	0.943	0.959	0.969	0.860
TROŠ2	0.960			
TROŠ3	0.923			
TROŠ4	0.888			
TROŠ5	0.922			
TRUST				
TRUST1	0.776	0.918	0.931	0.577
TRUST10	0.782			
TRUST2	0.735			
TRUST3	0.711			
TRUST4	0.794			
TRUST5	0.775			
TRUST6	0.729			
TRUST7	0.659			
TRUST8	0.848			
TRUST9	0.772			
UČINK				
UČINK1	0.943	0.909	0.943	0.847
UČINK2	0.919			
UČINK3	0.899			
ZK				
ZK1	0.868	0.882	0.913	0.643
ZK2	0.852			
ZK3	0.833			
ZK4	0.452			
ZK5	0.873			
ZK6	0.849			
**all external loads are significant at the significance level 0.01*				

Appendix D

Table 3. Discriminant Validity Results (HTMT Indicator) for OAF producers

	DP	ECR	INF	KOM	KP	MS	POSLP	TRANS	TROŠ	TRUST	UČINK	ZK
DP												
ECR	0.657											
INF	0.855	0.670										
KOM	0.851	0.601	0.869									
KP	0.533	0.564	0.523	0.438								
MS	0.869	0.563	0.778	0.777	0.498							
POSLP	0.811	0.778	0.791	0.749	0.588	0.805						

TRANS	0.883	0.686	0.929	0.823	0.432	0.852	0.877					
TROŠ	0.394	0.360	0.556	0.375	0.680	0.457	0.469	0.427				
TRUST	0.932	0.617	0.878	0.841	0.538	0.935	0.857	0.930	0.491			
UČINK	0.872	0.703	0.745	0.680	0.596	0.812	0.879	0.856	0.449	0.848		
ZK	0.787	0.625	0.768	0.680	0.782	0.729	0.821	0.707	0.582	0.765	0.886	

Appendix D

Table 4. Confidence intervals of HTMT-a for OAF producers

	Original sample	**Lower limit**	**Upper limit**
ECR <-> DP	0.657	0.482	0.842
INF <-> DP	0.855	0.757	0.942
INF <-> ECR	0.670	0.527	0.810
KOM <-> DP	0.851	0.774	0.930
KOM <-> ECR	0.601	0.439	0.782
KOM <-> INF	0.869	0.804	0.943
KP <-> DP	0.533	0.337	0.734
KP <-> ECR	0.564	0.342	0.757
KP <-> INF	0.523	0.387	0.684
KP <-> KOM	0.438	0.301	0.610
MS <-> DP	0.869	0.773	0.940
MS <-> ECR	0.563	0.338	0.793
MS <-> INF	0.778	0.635	0.898
MS <-> KOM	0.777	0.676	0.881
MS <-> KP	0.498	0.328	0.689
POSLP <-> DP	0.811	0.696	0.897
POSLP <-> ECR	0.778	0.641	0.876
POSLP <-> INF	0.791	0.641	0.909
POSLP <-> KOM	0.749	0.616	0.870
POSLP <-> KP	0.588	0.401	0.757
POSLP <-> MS	0.805	0.677	0.898
TRANS <-> DP	0.883	0.764	0.977
TRANS <-> ECR	0.686	0.477	0.873
TRANS <-> INF	0.929	0.855	0.999
TRANS <-> KOM	0.823	0.724	0.923
TRANS <-> KP	0.432	0.234	0.674
TRANS <-> MS	0.852	0.721	0.942
TRANS <-> POSLP	0.877	0.754	0.955
TROŠ <-> DP	0.394	0.225	0.589
TROŠ <-> ECR	0.360	0.129	0.577
TROŠ <-> INF	0.556	0.381	0.731
TROŠ <-> KOM	0.375	0.251	0.572
TROŠ <-> KP	0.680	0.506	0.813
TROŠ <-> MS	0.457	0.282	0.658
TROŠ <-> POSLP	0.469	0.254	0.680

TROŠ <-> TRANS	0.427	0.253	0.654
TRUST <-> DP	0.932	0.875	0.986
TRUST <-> ECR	0.617	0.430	0.811
TRUST <-> INF	0.878	0.776	0.956
TRUST <-> KOM	0.841	0.751	0.924
TRUST <-> KP	0.538	0.340	0.737
TRUST <-> MS	0.935	0.881	0.980
TRUST <-> POSLP	0.857	0.750	0.930
TRUST <-> TRANS	0.930	0.837	0.998
TRUST <-> TROŠ	0.491	0.307	0.679
UČINK <-> DP	0.872	0.771	0.947
UČINK <-> ECR	0.703	0.537	0.864
UČINK <-> INF	0.745	0.583	0.879
UČINK <-> KOM	0.680	0.557	0.826
UČINK <-> KP	0.596	0.430	0.750
UČINK <-> MS	0.812	0.708	0.896
UČINK <-> POSLP	0.879	0.790	0.944
UČINK <-> TRANS	0.856	0.717	0.958
UČINK <-> TROŠ	0.449	0.270	0.634
UČINK <-> TRUST	0.848	0.754	0.921
ZK <-> DP	0.787	0.663	0.890
ZK <-> ECR	0.625	0.475	0.772
ZK <-> INF	0.768	0.618	0.889
ZK <-> KOM	0.680	0.585	0.799
ZK <-> KP	0.782	0.646	0.900
ZK <-> MS	0.729	0.605	0.847
ZK <-> POSLP	0.821	0.714	0.901
ZK <-> TRANS	0.707	0.555	0.844
ZK <-> TROŠ	0.582	0.406	0.742
ZK <-> TRUST	0.765	0.625	0.881
ZK <-> UČINK	0.886	0.779	0.967

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Table 5. Statements with indicators in the final model for retailers

Statement
collaboration
MS5_ Doing business with my OAF producer is not risky for my business.
KOM8_ Communication between me and my OAF producer is of very high quality (open and honest).
KOM9_OAF producer and I often discuss matters important to our business.
KOM11_ When disagreements arise between the OAF producer and me, we try to resolve them to mutual satisfaction.
INF2_OAF producer and I regularly exchange information about changes that could affect our business
INF6_I am well-informed about the OAF producer's business policies.
DP1_OAF producer and I aim for long-term business.
DP2_ I continuously work with the OAF producer on future demand planning.

TRANS3_The terms related to delivery, payment, and other business relationships I have with OAF producer are clearly defined.
performance
POSLP1_ Due to the trust between me and my OAF producer, operational efficiency has improved.
POSLP2_ Due to the trust between me and my OAF producer, the producer confirms orders more quickly.
ECR1_ Due to the trust between me and my OAF producer, we resolve consumer complaints more quickly.
ECR2_ Due to the trust between me and my OAF producer, consumers are more satisfied.
TROŠ2_Due to the trust between me and my OAF producer, my logistic operating costs have been reduced.
TROŠ3_ Due to the trust between me and my OAF producer, my inventory holding costs have been reduced.
TROŠ4_Due to the trust between me and my OAF producer, my product return costs have been reduced.
TROŠ5_Due to the trust between me and my OAF producer, my transportation costs have been reduced.
KP1_ Due to the trust between me and my OAF producer, I am able to offer lower prices than competitors.
KP2_Due to the trust between me and my OAF producer, I achieve a higher level of product quality.
KP4_Due to the trust between me and my OAF producer, I gain better competitive advantage.
ZK2_Due to the trust between me and my OAF producer, I achieve a higher profit margin.
ZK3_Due to the trust between me and my OAF producer, the risk in my business has been reduced.
ZK5_Due to the trust between me and my OAF producer, I achieve better cash flow.
UČINK1_Trust between me and my OAF producer affects mutually better financial indicators.
UČINK2_Trust between me and my OAF producer affects the stability of our business.
UČINK3_Trust between me and my OAF producer affects better environmental performance of the supply chain.
trust
TRUST1_OAF producer respects my beliefs and tradition.
TRUST3_OAF producer has been fair in negotiations with me.
TRUST6_I consider my OAF producer a business partner.

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Table 6. Results of convergent validity and construct reliability for retailers

	External load*	**Cronbach alpha coefficient**	**Composite reliability**	**AVE**
collaboration				
DP1	0.729	0.884	0.905	0.516
DP2	0.736			
INF2	0.701			
INF6	0.598			
KOM11	0.804			
KOM8	0.843			
KOM9	0.676			
MS5	0.735			
TRANS3	0.605			
trust				

TRUST1	0.747	0.633	0.802	0.576
TRUST3	0.821			
TRUST6	0.705			
performance				
ECR1	0.427	0.940	0.947	0.521
ECR2	0.741			
KP1	0.520			
KP2	0.776			
KP4	0.736			
POSLP1	0.490			
POSLP2	0.603			
TROŠ2	0.854			
TROŠ3	0.883			
TROŠ4	0.875			
TROŠ5	0.805			
UČINK1	0.764			
UČINK2	0.699			
UČINK3	0.666			
ZK2	0.767			
ZK3	0.651			
ZK5	0.811			
**all external loads are significant at the significance level 0.01*				

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Table 7. Discriminant Validity Results (HTMT Indicator) for retailers

	trust	**collaboration**	**performance**
trust			
collaboration	0.742		
performance	0.813	0.542	

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Table 8. Descriptive statistics of the inter-organizational collaboration construct between the two product groups

	Type of product	N	Mean	Std. Deviation	Std. Error Mean
MS1_Collaboration with the retailer is of great importance to my farm.	Fresh OAF product	19	4,16	1,214	,279
	Processed OAF product	58	4,14	1,131	,148
MS2_I am satisfied with the collaboration with my retailer.	Fresh OAF product	19	4,53	,697	,160
	Processed OAF product	58	4,02	,827	,109
MS3_My collaboration with the retailer is contractual, which suits me entirely.	Fresh OAF product	19	3,53	1,467	,337
	Processed OAF product	58	3,67	1,491	,196
MS5_Doing business with my retailer is not risky for my business.	Fresh OAF product	19	4,26	,733	,168
	Processed OAF product	58	3,95	,944	,124
MS6_I am flexible and adapting to the retailer's needs.	Fresh OAF product	19	4,47	,697	,160
	Processed OAF product	58	4,41	,702	,092
MS7_Retailer always honours our agreement.	Fresh OAF product	19	4,37	,831	,191
	Processed OAF product	58	3,84	1,040	,137
MS8_Retailer shows understanding for the problems that arise during production and distribution processes.	Fresh OAF product	19	4,32	,749	,172
	Processed OAF product	58	3,84	1,167	,153
MS10_Activities between me and the retailer are well-coordinated.	Fresh OAF product	19	4,32	,749	,172
	Processed OAF product	58	4,16	,894	,117
MS11_My retailer always considers the best interests of both parties.	Fresh OAF product	19	3,95	,970	,223
	Processed OAF product	58	3,52	1,158	,152
MS12_I would recommend other farmers to become suppliers for my retailer.	Fresh OAF product	19	4,37	,684	,157
	Processed OAF product	58	3,91	,978	,128
MS13_I trust the expertise of my retailer.	Fresh OAF product	19	4,42	,692	,159
	Processed OAF product	58	4,12	,860	,113
MS	Fresh OAF product	19	4,2440	,6188	,1419
	Processed OAF product	58	3,9623	,7326	,0962

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Table 9. t-test of significance of differences in inter-organizational collaboration between two supply chains

	t	df	Two-sided p significance	Mean difference	Std. Error Difference
MS1_Collaboration with the retailer is of great importance to my farm.	,066	75	,948	,020	,304
MS2_I am satisfied with the collaboration with my retailer.	2,414	75	,018	,509	,211
MS3_My collaboration with the retailer is contractual, which suits me entirely.	-,372	75	,711	-,146	,393
MS5_Doing business with my retailer is not risky for my business.	1,326	75	,189	,315	,237
MS6_I am flexible and adapting to the retailer's needs.	,323	75	,747	,060	,185
MS7_Retailer always honours our agreement.	1,994	75	,050	,524	,263
MS8_Retailer shows understanding for the problems that arise during production and distribution processes.	1,648	75	,104	,471	,286
MS10_Activities between me and the retailer are well-coordinated.	,705	75	,483	,161	,228
MS11_My retailer always considers the best interests of both parties.	1,458	75	,149	,430	,295
MS12_I would recommend other farmers to become suppliers for my retailer.	1,877	75	,064	,455	,242
MS13_I trust the expertise of my retailer.	1,381	75	,171	,300	,218
MS	1,507	75	,136	,2816	,1868

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Table 10. Descriptive statistics of trust construct between the two product groups

	Type of product	N	Mean	Std. Deviation	Std. Error Mean
TRUST1_Retailer respects my beliefs and tradition.	Fresh OAF product	19	4,00	1,054	,242
	Processed OAF product	58	3,83	,994	,130
TRUST2_I have no doubt about the retailer's motives.	Fresh OAF product	19	4,16	,688	,158
	Processed OAF product	58	3,69	,995	,131
TRUST3_Retailer has been fair in negotiations with me.	Fresh OAF product	19	4,37	,684	,157
	Processed OAF product	58	3,93	,856	,112
TRUST4_I trust my retailer.	Fresh OAF product	19	4,26	,872	,200

	Processed OAF product	58	3,91	1,031	,135
TRUST5_Retailer trusts me as a supplier.	Fresh OAF product	19	4,63	,597	,137
	Processed OAF product	58	4,45	,730	,096
TRUST6_I consider my retailer a business partner.	Fresh OAF product	19	4,37	,761	,175
	Processed OAF product	58	4,31	,940	,123
TRUST7_The relationship between me and my retailer is characterized by strong personal connections.	Fresh OAF product	19	3,21	1,134	,260
	Processed OAF product	58	2,72	1,295	,170
TRUST8_I trust the information that my retailer shares with me.	Fresh OAF product	19	4,26	,653	,150
	Processed OAF product	58	4,02	,827	,109
TRUST9_If something goes wrong, I will remain loyal to my retailer.	Fresh OAF product	19	3,84	,958	,220
	Processed OAF product	58	3,74	,965	,127
TRUST10_From my long-term experience, I know I can trust my retailer.	Fresh OAF product	19	4,16	,958	,220
	Processed OAF product	58	3,95	,907	,119
TRUST	Fresh OAF product	19	4,126	,6190	,1420
	Processed OAF product	58	3,855	,7226	,0949

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Table 11. t-test of significance of differences in trust between two supply chains

	t	df	Two-sided p significance	Mean difference	Std. Error Difference
TRUST1_Retailer respects my beliefs and tradition.	,647	75	,520	,172	,267
TRUST2_I have no doubt about the retailer's motives.	1,904	75	,061	,468	,246
TRUST3_Retailer has been fair in negotiations with me.	2,024	75	,047	,437	,216
TRUST4_I trust my retailer.	1,328	75	,188	,349	,263
TRUST5_Retailer trusts me as a supplier.	,990	75	,325	,183	,185
TRUST6_I consider my retailer a business partner.	,244	75	,808	,058	,238
TRUST7_The relationship between me and my retailer is characterized by strong personal connections.	1,462	75	,148	,486	,333
TRUST8_I trust the information that my retailer shares with me.	1,179	75	,242	,246	,209
TRUST9_If something goes wrong, I will remain loyal to my retailer.	,395	75	,694	,101	,255
TRUST10_From my long-term experience, I know I can trust my retailer.	,863	75	,391	,210	,243
TRUST	1,467	75	,147	,2711	,1848

PROŠIRENI SAŽETAK

Predmet istraživanja ove doktorske disertacije su opskrbni lanci ekoloških poljoprivredno-prehrambenih proizvoda (EPPP), odnosno način na koji suradnja i povjerenje među članovima opskrbnog lanca utječu na uspješnost opskrbnog lanca EPPP. U posljednjih desetak godina, kako u svijetu, tako i u Republici Hrvatskoj (RH), povećano je zanimanje za ekološku poljoprivrednu proizvodnju. Na svjetskoj i europskoj razini bilježi se trend rasta površina pod ekološkom proizvodnjom pa tako i u Republici Hrvatskoj. Proizvođači EPPP prepoznali su potencijal tržišta i njihov broj eksponencijalno raste. Međutim, nema dovoljno istraživanja koja bi razmatrala problematiku sa stajališta distribucije EPPP na tržište i izazova s kojima se susreću dionici u opskrbnim lancima EPPP. Zbog nedovoljne istraženosti samih odnosa u opskrbnom lancu poljoprivredno-prehrambenih proizvoda, a posebice EPPP, glavni cilj rada je upravo detaljnije razmatranje i analiziranje ovih opskrbnih lanaca odnosno ispitati percepcije proizvođača i trgovaca na malo EPPP o važnosti suradnje i povjerenja za njihov nastup na tržištu i sveukupnu uspješnost lanaca opskrbe EPPP.

Disertacija je podijeljena u četiri zasebna i međusobno povezana znanstvena rada. U prva dva rada daje se odgovor na istraživačka pitanja „Kako su konceptualizirani 'suradnja', 'povjerenje' i 'uspješnost' u upravljanju lancem opskrbe poljoprivredno-prehrambenim proizvodima? te „Kako se u literaturi raspravlja o suradnji, povjerenju i uspješnosti u području upravljanja lancima opskrbe poljoprivredno-prehrambenim proizvodima i kako se to razvijalo tijekom vremena? Cilj im je sintetizirati istraživanja objavljena u razdoblju od 18 godina (od 2003. do početka 2020.)

Kako bi se odgovorilo na ta pitanja u prvom radu proveden je opsežan i temeljit sustavni pregled literature (SLR). U radu je obuhvaćamo šire područje istraživanja „suradnje", „povjerenja" i „uspješnosti" (*eng.* „collaboration" „trust" „perfomace", CTP model), uključujući povezane čimbenike u lancima opskrbe hranom. Analiziran je sadržaj 137 radova vezanih uz CTP s obzirom na analitičku jedinicu, primijenjenu metodologiju istraživanja i geografsku usmjerenost radova, vrstu odnosa i dionike lanca uključenih u pojedini opskrbni lanac. Rad identificira glavne dionike u lancu opskrbe poljoprivredno-prehrambenim proizvodima (AFSC) i njihove odnose. Kada je riječ o analizi pojedinačnih konstrukata CTP modela, pokazalo se da je povjerenje najdominantniji konstrukt, zatim suradnja i, konačno, uspješnost. Povezanost i međuovisnost C, T i P u odnosu još je nedovoljno istraženo područje s fokusom na stavove individualne percepcije primarnog poljoprivredno-prehrambenog

proizvođača (PAFP) u odnosu na njegove nizvodne partnere u lancu. Također je identificirano devet tipičnih tipova odnosa na temelju broja međusobno povezanih aktera i cilja istraživanja.

Glavna svrha drugog rada je identificirati korijene CTP-a u domeni istraživanja AFSC-a, kao i prepoznati intelektualne temelje ovog područja istraživanja. U radu je provedena bibliometrijska analiza (BA) koja je usmjerena na CTP-raspravu unutar prethodno odabranog broja recenziranih akademskih članaka, koji su dostupni u bazi podataka Web of Science CC. Rad pruža platformu za praktičare i istraživače u njihovim nastojanjima da identificiraju postojeće stanje, nedostatke u trenutnim istraživanjima i buduće smjerove istraživanja u području suradnja-povjerenje-uspješnost u AFSC-u. U svrhu bibliometrijske analize (BA), napravljen je i sustavni pregled literature (SLR) koji je otkrio 69 povezanih radova s fokusom na povjerenje, suradnju i uspješnost u AFSC-u. Sadržaj radova dodatno je analiziran s obzirom na definiciju CTP-a, tematska područja, jedinicu analize, metodologiju istraživanja, profil autora i godinu izdanja, teorijske objektive i druge relevantne kategorije. Rezultati pokazuju da je područje istraživanja raspoređeno u dva različita područja interesa kao što su marketing odnosa i fenomen upravljanja operacijama. Sustavnom analizom visoko citiranih radova utvrđeno je da prevladavaju kvantitativne studije koje koriste ankete. Nalazi su u skladu s prethodno provedenim SLR-om i ukazuju da se ovoj temi ne pridaje velika istraživačka pozornost unatoč važnosti AFSC-a za mnoge zemlje te bi se u budućim istraživanjima više fokusa trebalo staviti na istraživanje suradnje, povjerenja i uspješnosti u AFSC-u. Najatraktivniji istraživački centar po broju publikacija je BFJ u kojem je objavljeno 20% članaka u ukupnom uzorku. Nadalje, u oba rada otkriven je znatno manji broj radova u kojima se elaborira istraživanje odnosa u lancima opskrbe EPPP, što ukazuje na potrebu povećanja broja studija o tim lancima, s obzirom na to da ekološka poljoprivredno-prehrambena proizvodnja danas dobiva sve veći značaj.

Shodno nalazima dobivenim u prva dva rada i činjenice da nedostaje empirijskih istraživanja specifičnih aktivnosti i odnosa koji se formiraju unutar opskrbnih lanaca ekološke hrane, u sljedećoj fazi istraživanja glavni cilj bio je ispitati percepcije proizvođača i trgovaca EPPP o važnosti suradnje i povjerenja za njihov nastup u lancima opskrbe EPPP. Putem dubinskih intervjua napravljeno je preliminarno istraživanje na uzorku od 6 proizvođača i 4 trgovaca na hrvatskom tržištu ekološke hrane. Rezultati provedenih intervjua s proizvođačima objavljeni su u trećem radu ove disertacije, dok su rezultati intervjua s trgovcima sastavni dio četvrtog rada. Rezultati su pokazali da se percepcije proizvođača o utjecaju suradnje i povjerenja na sveukupnu uspješnost razlikuje ovisno o duljini suradnje s trgovcima, vrsti

proizvoda, i postotku ukupne prodaje koju prodaju putem trgovaca. Što se tiče trgovaca stavovi se također razlikuju s obzirom radi li se o velikim trgovcima mješovite robe, većim specijaliziranim trgovcima ili malim i srednjim trgovcima zdrave hrane. Rezultati istraživanja pokazuju da proizvođači ekološke hrane uglavnom koriste kratke lance, osobito izravnu prodaju, za plasman svojih proizvoda. Činjenica je da pravi lanac opskrbe ne postoji (nema dovoljno zahtjeva za praćenje sljedivosti, dijeljenje zajedničkih rizika, razvoj novih proizvoda, zajednička ulaganja ili dijelove resursa, zajednički planovi i ciljevi itd.). Za obje kategorije proizvođača EPPP (veliki i mali) postoji velika neizvjesnost suradnje s velikim trgovačkim lancima, dok je suradnja s malim trgovcima često neformalna i temelji se na međuljudskom povjerenju. Međutim, mali proizvođači EPPP ne ovise o trgovcima jer je njih udio prodaje kroz ovaj kanal mali (maksimalno 20%). Pozitivna prošla suradnja značajno je utjecala na stjecanje povjerenja u vezi s obje strane. I ekološki proizvođači i trgovci prepoznaju iste probleme na tržištu ekoloških proizvoda i daju slične preporuke za razvoj tržišta organske hrane.

Četvrti rad temelji se na empirijskim istraživanjima provedenima na uzorku od 81 proizvođača EPPP i 22 trgovca na malo koji u svom asortimanu prodaju i EPPP. Anketiranje je provedeno na području RH. Percepcije proizvođača i trgovaca namalo EPPP o utjecaju C i T na P su analizirane temeljem jedinstvenog anketnog upitnika koji je osmišljen s ciljem testiranja postavljanog konceptualnog istraživačkog modela (CTP model) i predloženih hipoteza. Hipoteze su testirane metodom modeliranja strukturnih jednadžbi primjenom metode parcijalnih najmanjih kvadrata (PLS-SEM). Rezultati su pokazali pozitivan i značajan utjecaj suradnje na povjerenje te pozitivan statistički značajan utjecaj povjerenja na uspješnost i kod proizvođač i trgovaca na malo. Analizirajući pojedine pokazatelje suradnje rezultati su pokazali neke razlike u percepciji proizvođača u odnosu na trgovce. Proizvođači EPPP smatraju da razmjena informacija nije bitno utjecala na povjerenje u trgovce, jer se povjerenje uglavnom gradi na prethodnom iskustvu kvalitetne i poštene suradnje. S druge strane trgovci na malo razmjenu informacija te osobito kvalitetnu komunikaciju smatraju važnim prethodnikom povjerenje. Iako je preliminarno istraživanje pokazalo da kvalitetni odnosi i suradnja ponekad ovise o kvaliteti i vrsti proizvoda (svježi ili prerađevine) koje nude proizvođači ekološke hrane, anketnim istraživanjem na većem uzorku proizvođača i trgovac na malo nije potvrđeno da postoje razlike između opskrbnih lanaca EPPP s obzirom na vrstu proizvoda koja se plasira navedenim opskrbnim lancem (svježi EPPP ili prerađevine).

Nalazi ovog istraživanja pokazali su da iako hrvatsko tržište EPPP spada u nova i još nedovoljno razvijena tržišta, opskrbne lance EPPP u Hrvatskoj karakterizira visoka razina

povjerenja, sa stajališta proizvođača i trgovaca na malo, koja se temelji na kvalitetnoj prošloj suradnji koja teži dugoročnim poslovnim odnosim. Također, kvalitetna suradnja i visoka razina povjerenja pozitivno utječe na poboljšanje financijskih i nefinancijskih pokazatelja uspješnosti članova pojedinačno, ali i cijelog lanca opskrbe.

Rezultati disertacije doprinose postojećem znanju u području istraživanja iz teorijske i aplikativne perspektive i nude preporuke za moguća poboljšanja u upravljanju odnosima unutar AFSC-a, lanca koji je sam po sebi specifičan. Istraživanjima provedenima za potrebe doktorskog rada doprinosi se još uvijek slabo razvijenoj raspravi o utjecaju suradnje i povjerenja na uspješnost lanca opskrbe hranom. Iz praktične perspektive, primijenjeni istraživački model pruža dokaze koji potvrđuju pozitivan učinak određenih čimbenika suradnje na razvoj povjerenja između proizvođača i trgovaca na malo EPPP, i posljedično, utjecaj povjerenja na pokazatelje uspješnosti opskrbnog lanca EPPP. Rezultati istraživanja članovima u lancima opskrbe hranom pružaju dokaze o stvarnim prednostima ulaganja napora u razvoj čimbenika suradnje i povjerenja i vertikalne integracije kako u smislu postizanja operativne izvrsnosti tako i poboljšanja ekonomskih pokazatelja svakog člana lanca, a i cjelokupnog lanca opskrbe hranom

Ključne riječi: *upravljanje opskrbnim lancem poljoprivredno-prehrambenih proizvoda; opskrbni lanac ekoloških poljoprivredno-prehrambenih proizvoda; proizvođači i trgovci ekoloških poljoprivredno-prehrambenih proizvoda; kvaliteta odnosa; suradnja; povjerenje; uspješnost; kvalitativno i kvantitativno istraživanje; Hrvatska*

CURICCULUM VITAE

DUŠANKA GAJDIĆ, univ. spc. oec., was born on 24 December 1965. in Sv. Ivan Žabno. She graduated from high school of economics in Vrbovec. She began her higher education in her early 30s. She obtained her master's degree in economics at the Faculty of Economics of the University of Zagreb, Department of Trade, in 2002. At the same faculty in 2010 she obtained the academic title of university specialist in business economics, field of social sciences, majoring in Quality Management, by defending her specialist post-graduate thesis entitled "Food Safety Management Systems“.

She has many years of work experience starting as a bank clerk, transitioning to a private entrepreneur, and a secondary school teacher. Since 2010 she is a senior lecturer at Križevci University of Applied Sciences in the field of management and organization, trade, quality management and accounting. She held the position of Head of the Quality Unit for eight years and Head of the Department of Management in Agriculture for four years. She currently serves as the Head of professional undergraduate study programme of Agriculture.

She is an authorized internal auditor of the quality management system according to the ISO 9001 standard, as well as an active participant of national and international conferences in the field of quality management, trade, agribusiness, and food safety. Her areas of research interest are agri-food supply chains, relationship management in food supply chain, sustainability of agri-food chains, food quality and food safety, food waste and food losses. She continuously engages in empirical research and publishes works in the aforementioned areas. As a researcher, she participated in several international projects, including cross-border cooperation projects INTERREG VA Hungary-Croatia

Currently, she is a PhD student in the Postgraduate Doctorate in Business Economics at the Faculty of Economics, University of Rijeka. She is in the process of completing her doctoral studies based on the Scandinavian model in the field of relationship management in food supply chains and the impact on supply chain performance.

LIST OF PUBLISHED PAPERS

Articles

I. Original scientific papers indexed in Web of Science (Current Contents Connect)

1. **Gajdić, D**., Kotzab, H. and Petljak, K. (2023). "Collaboration, trust and performance in agri-food supply chains: a bibliometric analysis", *British Food Journal*, Vol. 125 No. 2, pp. 752-778. https://doi.org/10.1108/BFJ-07-2021-0723

2. **Gajdić, D**., Mesić, Ž., Petljak, K. (2021). Preliminary Research about Producers' Perceptions of Relationship Quality with Retailers in the Supply Chain of Organic Food Products in Croatia // *Sustainability*, 13 (2021), 24; 1-41 https://doi.org/10.3390/su132413673

3. **Gajdić, D**. (2019). Definition and characteristics of short agri-food supply chains for products. *Ekonomska misao i praksa*, *28*(1), 381-408.

4. **Gajdić, D**., Petljak, K., & Mesić, Ž. (2018). An exploration of distribution channels: Challenges and opportunities for organic food producers in Croatia. *Економика пољопривреде*, *65*(4), 1461-1482.

5. **Gajdić, D**., Horvat, D., & Zrno, M. (2012). Accreditation as a mechanism for increasing the confidence of users of laboratory services for quality control of agricultural seeds. *Sjemenarstvo*, *29*(3/4), 155-166.

II. Other scientific works published in journals

1. Šundov, M., **Gajdić, D**., & Petljak, K. (2019). Eco-distribution centres for agricultural products in the function of consumer potential of urban centres. Poslovna izvrsnost, 13(2), 53-83.
2. Dumičić, K., & **Gajdić, D**. (2011). Istraživanje utjecaja primjene sustava upravljanja kvalitetom hrane na poslovni rezultat u hrvatskim prehrambenim poduzećima. Poslovna izvrsnost, 5(1), 9-32.

III. Articles in Conference Proceedings with an international review

1. **Gajdić, D**., Marenčić, D., Pavičić, G. (2021). Utjecaj čimbenika kvalitete na percepciju potrošača prilikom odluke o kupnji u kratkim lancima opskrbe hranom // 56. hrvatski i 16. međunarodni simpozij agronoma : zbornik radova = 56th Croatian and 16th International

Symposium on Agriculture : Proceedings / Rozman, Vlatka ; Antunović, Zvonko (ur.). Osijek: Fakultet agrobiotehničkih znanosti Osijek ; Sveučilišta Josipa Jurja Strossmayera u Osijeku, 2021. str. 182-187. (predavanje, međunarodna recenzija, cjeloviti rad (in extenso), znanstveni)

2. **Gajdić, D**., Petljak, K., & Kralj, N. (2019, February). Percepcije potrošača o sigurnosti hrane u sjeverozapadnoj Hrvatskoj. In *54th Croatian & 14th International Symposium on Agriculture, Proceedings* (pp. 107-112). (predavanje, međunarodna recenzija, cjeloviti rad (in extenso), znanstveni)

3. Šundov, M., & **GajdiĆ, D**. (2019). Eco-distribution centers of agricultural products in the function of sustainable development of urban centers. *Economic and Social Development: Book of Proceedings*, 414-423.

4. **Gajdić, D**., Horvat, D., & Marković, S. Š. (2017). Situation in Laboratories for Seed Quality Control in the Republic Of Croatia-Starting Point for Accreditation. *25th International Scientific- Experts Congress on Agriculture and Food Industry - Izmir 2014,* In *Presidency of the Congress* (Vol. 40, p. 17).

AUTHORSHIP STATEMENT

The undersigned Dušanka Gajdić, a student at the University of Rijeka, Faculty of Economics and Business (hereafter: EFRI), author of this doctoral thesis with the title „The Impact of Collaboration and Trust on Perfomance in the Organic Food Supply Chain“, prepared under supervision of assoc. prof. Kristina Petljak, PhD and co-supervision of assoc. prof. Helga Pavlić Skender, PhD.

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