Encouraging environmental sustainability through local sourcing: large buyers in the German food industry

Author: Simone Bouma
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

ABSTRACT

Local sourcing and environmental sustainability gained increasing attention in the past years due to discussions about climate change. Food supply chains are responsible for climate change as well, which makes it necessary to find ways to decrease this impact. Hence, it is needed to discover if and how local sourcing can be implemented in the food industry while, at the same time, supporting the climate and environment. Therefore, this paper aims to address how local sourcing methods can support the environmental sustainability performance of large buyers in the food industry in Germany. Qualitative research was done in the form of semi-structured interviews with nine companies to gain deeper insight into their expertise. The findings indicate that local sourcing brings several advantages, for example, less packaging and waste, for the environment – if implemented and executed correctly. However, many factors must be aligned to make this happen. There is still further research required, for example, by collecting more data to generalise the findings and develop a framework for local sourcing implementation as a tool to support the environmental sustainability performance of a company.

Graduation Committee members:
Prof. Dr. L.A. Knight
Dr. F.G.S. Vos

Keywords
Local sourcing, environmental sustainability, food sourcing, Germany, sourcing methods

1. INTRODUCTION

Climate change and sustainability are in everyone's mouth, and therefore, sustainability, buying regional food, and local sourcing are often discussed topics (Goggins and Rau, 2016, p.258; Giunipero et al., 2018, p.1; Forsa, 2021, p.16). Companies become more aware of their importance for their daily business. Sustainability covers three different main areas, which can be referred to as the triple bottom line. To be named here are social, environmental, and economic sustainability (Elkington, 1998, p.37). The focus of this paper will be on **environmental sustainability**.

Local food sourcing is also a topic that is considered to be important regarding environmental sustainability. For example, Tukker and Jansen (2006, p.171) found that food supply chains make about 31% of the global greenhouse gas emissions, which shows the necessity to change something to reduce these emissions. The topic of local food is reviewed more critically by consumers (Jones et al., 2004, p.335; Forsa, 2021, p.16). Customers view local sourcing as more environmentally friendly because of the perception of shorter supply chains (Brunori et al., 2016, p.2). In Germany, there is currently a trend towards buying more regional and seasonal food (Forsa, 2021, p.15). Large food buyers might be forced to pay more attention to local sourcing due to this trend.

There is a controversial discussion about **local sourcing** going on as well. Some people are convinced of its advantages, while others are critically focusing on the disadvantages and challenges of local sourcing (Giunipero et al., 2018, p.10). One opposing argument challenges the environmental friendliness of local sourcing. One might argue that it cannot be generalised that local sourcing is more environmentally friendly than global sourcing (Lehtinen, 2012, p.1067).

In the past years, there was extended global sourcing due to cost advantages (Jones et al., 2004, p.335), but recently an opposite trend occurred towards local sourcing and re-shoring. Re-shoring refers to returning to the country of origin (Fratocchi et al., 2014, p.56). So, starting to source the regionally available food to shorten transport ways and increase the customer reputation of the food buying companies (Nischwitz and Molitor, 1998, p.54). However, it is still questionable if going back to local sourcing is worth the effort. The complication appearing here is for the large buying firms to buy locally and support the environment simultaneously.

From an academic perspective, the case of local food sourcing needs some further research as it has a massive impact on the environment and climate change situation (Tukker, Jansen, 2006, p.171).

Practically, this research should show which methods are used by large food buyers to implement local sourcing. Furthermore, it should help large buyers figuring out and highlight how local sourcing supports green sustainability and identify potential additional advantages. Large food buying companies are mainly addressed here because of the large amount of food they buy. They have a more considerable ecological impact and the resources to implement more sophisticated logistic processes. Moreover, they are increasingly facing pressure from different stakeholders (Forsa, 2021, p.18). The research bases on studies that are, among other things, about implementing organic food by local sourcing or establishing alternative food networks (e.g., Braun et al., 2018, Maier et al., 2020).

The research question answered in this paper is:
How can local sourcing methods support large buying companies in the German food industry in order to improve their environmental sustainability performance?

The following sub-questions will be elaborated on a more detailed level later on in this paper:

1. Which local sourcing methods can be found in the literature?
2. Which methods from literature are used in practice by large buying companies in the food sector?
3. What did the interviewed companies expect to achieve by sourcing locally?
4. Which practical issues did they face while implementing local sourcing?
5. How do the local sourcing methods support the environmental friendliness of large buyers?

The remaining paper reviews literature, which builds the technical foundation for the further development of this paper. Here, sub-question one is answered. Furthermore, the theory used in this paper is explained, and the research methodology is introduced. Afterwards, the results of the interviews are shown and discussed. Here, the answer to the other sub-questions is given. In the end, a conclusion is drawn from that, which gives the answer to the research question.

2. LITERATURE REVIEW

At first, some terms of the research question need to be clarified.

"Large (food) buying companies" are viewed in this context as firms that buy large quantities of food and conduct food sourcing for re-selling or production. It is not in terms of the company's size (for example, the number of employees). Examples of food buying companies could be canteens of hospitals, caterers, or supermarkets.

Furthermore, the term "methods" in this context means practices or tools. It addresses local sourcing practices that the companies pursue, such as which methods to build the supply base.

2.1 Local sourcing and food sourcing

2.1.1 Local sourcing – definition and assessment

The focus of this paper is on local sourcing, which is an ambiguously defined term. Nevertheless, in this context, it is defined as the sourcing of goods in a particular geographical area, for example, the same region or country as the buyer (Jin, 2005, p. 278). For this research, it is at most Germany, or closer.

According to Tunisini et al. (2011), local sourcing strategically benefits knowledge and competence development, production flexibility, and cost efficiency (Tunisini et al., 2011, p. 1013). Moreover, compared to global sourcing, faster deliveries are possible (Choi et al., 2013, p.45, Ivanov et al., 2019, p.122). Ivanov et al. (2019, p. 122) view the same culture, currency, and regulations as an advantage of local sourcing as it, among other things, helps to make communication easier.

There exist different disadvantages and challenges in local sourcing. One would be the probably small supplier base, as there might not be as many suppliers available as needed. Therefore, the buyer firm might have to put in some effort to develop the supplier base (Cousins et al., 2008, p.80, Ivanov et al., 2019, p. 123). Another disadvantage would be the volatility of the local supply chain caused by the limited supply base (Tongaralak et al., 2017, p. 110).

2.1.2 Local food – information and assessment

Local food is often viewed as an opportunity for global food systems (Lehtinen, 2012, p.1056). Brunori (2007) and Jones et al. (2004) defined local food as food produced and consumed in a defined geographical area. This geographical area might differ in size (Brunori, 2007, p.10; Jones et al., 2004, p. 329). A crucial characteristic of local food is short supply chains which can appear in three types (Marsden et al., 2000, p.425f.). The first type is called "face-to-face", which means that the food is bought directly from the producer, for example, at a farmer's market. Here, the personal interaction of consumers and producers builds trust and authenticity. Secondly, when food is produced in a defined area, and the customers are in the same and made aware of that, this is called "spatial proximity". So, the origin of the good is known and communicated. The customer can go to the supermarket and decide to buy, for example, the eggs from the area. At third, Marsden et al. (2000) named the "spatially extended" type of short food supply chains. This means that the consumer is physically outside the production area of the food, but is informed about the origin of the food by the use of labels (Marsden et al., 2000, p. 425f.) In addition to that, local and short food supply chains are beneficial. They can outperform longer supply chains. For example, in terms of faster delivery, small work-in-progress inventories, higher flexibility, higher traceability and transparency, and lower quality and hygiene risks (Lehtinen, 2012, p. 1067).

2.2 Local food sourcing practices

In literature, the term "local sourcing" is used very often. However, there is not very much known about local sourcing practices. Some relevant examples found for this research are introduced here. These examples are not limited to Germany.

One method found is the use of **wholesalers**. For example, Pearson (2011) talks about TFC (True Food Co-operative), which is the innovative idea of sourcing food locally in the UK instead of importing it. The True Food Co-operative is "a community-owned, not-for-profit organisation"(Pearson, 2011, p.892) and sources its fresh products from a wholesaler in the next city. A new challenge for this innovation is increasing the number of farmers in the area directly sourced from in order to shorten the supply chain (Pearson, 2011, p. 895). This is done already in Finland, as a further example of Lehtinen (2012) shows. Finnish school catering used four wholesalers delivering to the school kitchens. Moreover, one potato producer delivers directly to the kitchen without a wholesaler in between whenever potatoes are needed (Lehtinen, 2012, p. 1062).

Another example found by Tongarlak et al. (2017) is the integration of local farms in retailers' sourcing by establishing three operating conditions. Devices are to, at first, *involve an intermediary* who should simplify the information flow between the retailer and the farmer. This would also lead to a decrease in supply chain volatility. Secondly, Tongarlak et al. (2017) recommend a *better organisation of backhauling*, thus minimising empty runnings, to reduce the transportation costs. At third, a *request procedure guarantees the local farmer to get rid of a certain quantity of goods* purchased by the retailer (Tongarlak, 2017, p. 110 f.).

There are also examples found of sourcing practices in Germany. One local sourcing practice used in literature is **networking or clustering with local suppliers**. One example from Maier et al. (2020) is about alternative food networks (AFN). The interviewed companies, which were breweries in Germany, created a network of different suppliers in their region to supply hop and barley. According to Maier et al. (2020, p. 8), three success factors are needed to implement local sourcing well. First, it is to create authenticity with the sourcing partners. In this case, the brewery was open and honest with its suppliers and customers, which led to high credibility, giving the company a competitive advantage in pricing. Next, there should be a "good fit of individual business structures" (Maier et al., 2020, p. 8) which means the buyer and supplier should somehow be similar in size and scope. At third, there should be an intensive collaboration to make the supply chain working as efficient as possible.

Braun et al. (2018) conducted a study on organic and local food in school catering in Berlin. They found that organic food is important, while local food is constrained by missing pre-processing facilities required by school canteens. Farmers who could deliver the food as suppliers directly exist, but they are not specialised in pre-processing their food yet (Braun et al., 2018, p.14).

In a study of 1998, Nischwitz and Molitor found another example of networking. To build a supplier network for local food sourcing, supermarket groups **contacted farmers or producer groups themselves** to connect with them and get into a buyer-supplier relationship. Moreover, supermarkets use **intermediaries** who purchase all the goods collectively (Nischwitz and Molitor, 1998, p. 64). The methods identified in the literature are summarised in table 1.

Table 1: Summary local sourcing practices

Method/practice	**Source**
Wholesaler	Pearson (2011), Lehtinen (2012)
Retailer	Tongarlak et al. (2017)
Clusters / Networks	Maier et al. (2020)
Intermediaries	Nischwitz & Molitor (1998)
Direct contact to farmers/ producers	Nischwitz & Molitor (1998)

2.3 Environmental sustainability in the food chain

2.3.1 Definition of environmental sustainability

Another focus of this research is environmental or ecological sustainability. There are several definitions for it. The one taken for this paper is based on Morelli (2011, p.5). He views environmental sustainability as "a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity" (Morelli, 2011, p.5).

In addition to that, environmental sustainability relates to aspects like pollution, biodiversity, resource use and food waste (Brunori et al., 2016, p.4). The ecological part also implies living within the limits of the environment (Lehtinen, 2012, p.1055). Additionally, Quarshie et al. (2016) identified different environmental impacts and issues. For example, climate change, scarcity of natural resources, biodiversity loss and conversion, deforestation, toxicity and pesticides, animal care, and disease (Quarshie et al., 2016, p.85).

2.3.2 Discussion and trends in local food chains

Environmental sustainability in the food chain recognises several factors that measure if a food chain is environmentally friendly or not. One of these factors is the greenhouse emissions that are produced. Multiple sources cause greenhouse emissions. For example, using land to build crops, transporting food over different distances (importing vs local), food waste, and the energy needed to store the food products (Aikins and Ramanathan, 2020, p.346). The study of Aikins and Ramanathan (2020) found that in the UK, the most emissions result from transportation and sales or distribution of food products.

It is a controversial discussion if local food chains are better for the environment than global food chains. Case studies of Ilbery and Maye (2005) and Brunori et al. (2016) show that it depends on several factors if the local sourcing of food is perceived as better than global sourcing. For example, Ilbery and Maye (2005) conducted a case study according to the SUSTAIN measures of sustainable food criteria. SUSTAIN is an alliance for better food and farming in the UK (Ilbery and Maye, 2005, p. 333). In this case study, they tested six local food producers at the beginning of a local food chain in the United Kingdom. The study found that only one out of the six would be identified as environmentally friendly (Ilbery and Maye, 2005, p. 340). Another example of Brunori et al. (2016), asking if local food chains are more sustainable than global ones, showed that local food chains were more sustainable regarding biodiversity. Moreover, the study examined that local and global food chains do not permanently exclude each other (Brunori et al., 2016, p. 448).

An upcoming and increasingly used term is sustainable procurement (SP). According to Walker et al. (2009, p.128), sustainable procurement is "consistent with the principles of sustainable development". Sustainable procurement emerged from the sustainable development term that the Brundtland Commission announced. The Brundtland report defined in 1987 sustainable development as the "development that meets the needs of the present without compromising the ability of future generations to meet their needs".

Also, green supply chain management is coming upfront. As Walker et al. found in 2008, there are specific barriers and drivers for engaging in green supply chain management. For example, drivers are customers, competitors, and society, but also organisational factors. The researchers found costs, lack of legitimacy, and industry-specific obstacles as barriers (Walker et al., 2008, p.69). Examples of green supply chain management practices are the decrease in waste production, the development of eco-friendly products, and the reduction of carbon emissions in connection with the transport of goods.

2.3.3 Impacts on the environment

Companies or institutions pursuing a local sourcing strategy can cause different ecological advantages. For example, local sourcing supply results in fewer transported kilometres. The shorter transportations reduce the amount of energy needed for the product life cycle (for example, cooling, storage), the resources, and the greenhouse emissions (Jones et al., 2004, p.330; Ilbery and Maye, 2005, p.332; Sarkis, 2020, p.67). Moreover, biodiversity is brought from the producer (farmer) directly to the consumer (plate). This way, the number of nodes in the supply chain is minimised (Ilbery and Maye, 2005, p.334). Other benefits of local sourcing for the environment are reduced waste because of less packaging needed and increased recycling (Krishnan et al., 2020, p.13).

On the other hand, local sourcing does not only bring advantages for the environment. Disadvantages or challenges for the environment produced by local sourcing can appear through the growing internet sales and orderings of food that would abolish the reduction in transported kilometres (Ilbery and Maye, 2005, p.334). Moreover, if the producer is the beginning of the food chain and this producer is a conventional farmer, it needs to be questioned if this is better than an organic producer further away (Ilbery and Maye, 2005, p.334). At last, Ilbery and Maye (2005) question the motivation for sourcing food locally. Mostly, it is a mixture of long and short food supply chains because of economic reasons.

3. METHODOLOGY

3.1 Method for data collection: literature review and interviews

3.1.1 Decision for a qualitative research method

For this project, a qualitative research method including semi-structured interviews is used to gain in-depth knowledge of the researched topic. Qualitative research was chosen over quantitative analysis, as case studies and survey approaches were not applicable for this research for several reasons. First, this research aims at gaining more profound knowledge. This is impossible with a survey approach or questionnaires as these are used for statistical analysis (Weiss, 1995, p.2f; Saunders et al., 2019, p.178). With the qualitative interview study, the aim is to interpret the respondents' answers and support these by case descriptions and quotations (Weiss 1995, p. 3). Moreover, quantitative analysis is limited to standardisation, so there are limited answers (Weiss 1995, p.2). These are not helpful for this

research. With interviews, follow-up questions can be asked to fully understand the interviewee's sights (Saunders et al., 2019, p.178).

The research is exploratory. It follows a mixture of inductive and deductive reasoning. Inductive reasoning wants to find patterns from observations (in vivo codes). In contrast, deductive reasoning tests an expected pattern against observations or hypotheses drawn from literature (priori codes) (Saunders et al., 2019, p. 652). The deductive way is seen in the literature review. The researcher found one regular local sourcing practice (networking) and some kinds of networking (contact to farmers, use of wholesalers). With the help of the interviews, it aims to find out if these practices found in the literature (see 2.2) are used in daily business and other methods to find. The discovery of other local sourcing practices would be the inductive part.

3.1.2 literature review and interviews

The research is done in a two-folded way. At first, there is desk research in the form of a literature review about local sourcing, food sourcing, environmental sustainability and the methods used by different companies that implemented local sourcing. This research is mainly based on collecting and analysing non-numerical data as scientific articles. During the literature review, journal research was conducted. The journal research was limited to 2021, 2020 and 2019 to get an overview of the current situation. From the overall collection, 16 articles were identified as relevant and further investigated. An overview of the journals and the number of articles can be found in Appendix A.

Then nine interviews were used to find missing empirical evidence for the subject of this paper, namely the promotion of sustainability through local sourcing. Additionally, the interviews should give insights into how the companies executed and developed a local sourcing strategy. The interviews were semi-structured, with open-ended questions to gain insights into other people's experiences with local sourcing (Alsaawi, 2014, p.151).

Interview partners were companies or institutions that buy an enormous amount of food, partly by local sourcing. The person to be interviewed should be responsible for the sourcing and buying process, for example, a sourcing manager. All interviewed companies are settled in Germany. The nine interviews were conducted in German in May 2021 and had a length of between 20 and 90 minutes each. They were done online due to Covid-19 via zoom or Microsoft Teams in a one-to-one approach. With the permission of the participants, the interviews were recorded. Recording semi- or unstructured interviews is crucial to handle the high number of data the interviewer receives (Alsaawi, 2014, p.152). The interview guide can be found in Appendix B.

3.2 Transcription, coding, and analysis of the interviews

After data collection, the data needed to be transcribed and translated. The transcription was done with the software Amberscript. The transcripts of the interviews are left out due to confidentiality. For the analysis of the interviews, the data needed to be coded to prepare them for deeper analysis. The coding was done according to the thematic analysis approach in connection with the software Atlas.ti. Atlas.ti is a computer-assisted qualitative data analysis software. According to Braun and Clarke (2006, p.77f), the thematic analysis describes a systematic and flexible approach to analyse qualitative data. It helps to understand and identify patterns and themes in qualitative data like interview transcripts. The thematic analysis supports inductive and deductive reasoning (Saunders et al., 2019, p. 356). The thematic analysis consists of six steps. These steps are guidelines for analysing the data, but not in a linear, rather a recursive manner (Braun and Clarke, 2006, p. 86). The six steps to consider are namely (Braun and Clarke, 2006, p. 87):

1) become familiar with data.
2) generate initial codes.
3) search for themes.
4) review the themes.
5) define and name themes.
6) a report is produced relating to the research question

See Appendix C for the codes that emerged from the coding process.

After coding the interviews, the analysis took place. So, the principles were arranged in code groups or themes that the codes belong to. These were chosen regarding the sub-questions introduced in chapter one of this research. In these code groups, some codes that meant the same were merged. Afterwards, overviews were created to see what the participants answered and how often the codes were named. Based on that, the findings were discovered. From the analysis, the researcher could draw conclusions to answer the research question.

3.2.1 Expectancy theory as a tool used for analysis of the data

The expectancy theory is normally used to analyse the motivation of employees, but it is also helpful for this research. The theory states that the strength of a tendency to act in a certain way depends on how strong the expectation of the outcome is (Robbins et al. 2014, p. 138). In the given context, this implies that large food buying firms tend to conduct local sourcing of food depending on how strong their expectations for the outcome (advantages) are. For example, are the motives of a supermarket persuasive enough to implement local sourcing? Moreover, this research would address the performance–reward relationship. The company's performance equals the implementation of local sourcing in this research. The rewards would be, for example, the improvement of the environmental sustainability performance of the buying firm or the reputation among customers.

The expectancy theory is suitable for this research because it is expected that certain motives convince companies to pursue local sourcing and other reasons do not. The identification of the expectations answers sub-question 3.

4. RESULTS AND ANALYSIS OF INTERVIEWS

4.1 A short introduction to the nine interviewed companies

The following table shows the interviewed companies and some details about them.

Table 2: Overview of interviewed companies

Company	company	job title
A	event-caterer (small)	butcher/purchasing manager
B	restaurant-caterer (large)	head of purchasing department
C	special-care home	chef/purchaser/housekeeping manager
D	kindergarten	head of a kindergarten
E	supermarket	head of purchasing department
F	central market	head of purchasing department
G	online drugstore	purchaser
H	big food manufacturer	Head of purchasing department
I	vegan supermarket chain	Chairwoman – head of purchasing department

These participants were chosen because they engage in local sourcing to some extent. Some do more extensive local sourcing (company A), others less (I). These nine companies differ in size (large supermarket from a supermarket chain vs small caterer) and what they do with the food (e.g., re-selling, processing, cooking). Nine interview partners were considered enough to get the aimed insights. It was expected to get several various answers because of the differences in size and scope.

Next, a summary of every interview partner is given. Company A is a small event-caterer that has about ten full-time employees. This company pursues farming and growing bulls, has its own small farmer's shop, and as the main business, the catering service for weddings, birthdays, and other events. It follows local sourcing to a large extent as they aim at having two-third of their catering buffets with regional and seasonal products. It operates in one region in Germany.

Company B is also a catering service for company canteens and restaurants, such as football stadiums and other significant events. The company has about 9500 employees. It follows a diverse sourcing strategy and serves canteens and restaurants all over Germany.

Company C is a special-care home with its own kitchen that serves about 50 people a day. It aims at sourcing 80% regional and seasonal products. It operates solely in its home.

Company D is a kindergarten association consisting of five kindergartens that started cooking for themselves about five years ago. Each kindergarten has its own kitchen and serves between 50 and 70 children a day. This association aims at sourcing about 90% of its food regionally and operates only in this region.

Company E is a supermarket of a Germany-wide supermarket chain. The local sourcing is done with pork, fruits, vegetables, eggs, and dairy products. It is on its way to widen its local sourcing.

Company F is a central market that is not part of a chain but has a few stores in Germany. It sources pork and other products regionally. It operates in that one region in Germany.

Company G is an online drugstore that sources fruits and vegetables and raw materials as cornflakes regionally. It operates throughout Germany.

Company H is a food manufacturer of cakes and other products, sourcing parts of its raw materials like flour locally. It operates throughout Germany.

At last, there is the company I, a vegan supermarket chain that is not focusing on local sourcing but organic food. It operates throughout Germany.

4.2 Methods used to source locally by interviewed companies

The first coding category is about the methods used to source locally by the interviewed companies. The most often named local sourcing methods in the networking subcategory were associations and networks. The interviewed companies are members of farmers associations and import/export networks. Additionally, they widen their network on trade fairs and similar events. Through this, long-term relationships could establish. For example, Company A and I mentioned that they know some of their partners for more than ten years. Moreover, membership in associations is used to contact local producers. For example, company F is a member of different associations that support them in finding suitable partners in their local area. Also, company A recommended contacting farmer associations to get the first contact to implement a local sourcing strategy. As another example, company B works together in a network responsible for a whole region to supply them with bakery products.

Intermediary/wholesaler is named by four out of nine companies as a local sourcing strategy. This implies that there is always someone in between the interviewed company and the producer of the food for those companies. For example, Company C sources from a wholesaler but takes care that the wholesaler sources itself regionally and seasonally. Company C focuses very strict on the regionality and seasonality of its food and does not want to deviate from that.

Also, four times mentioned in the interviews was the direct *contact to the farmers* and producers, so the farmers deliver their goods directly to the interviewed companies. These companies are A, F, E, and G.

Another two companies stated that they visit *farmers markets* to procure their goods (company A and D).

An additional networking method found from the interviews is *Internet research* that can be conducted to get an idea of which suppliers are on the market. Company A and G use this method and take advantage of it.

Rarely mentioned and relatively new is networking through *hedging at markets and stock exchanges* for the best possible price. For example, company H said it uses the market to procure goods like flour for its business in Germany.

Company G explained that they do not necessarily have to search for new suppliers. Because they are growing in their market and are becoming more known, *suppliers start contacting them*, offering their assortment of goods.

All the methods mentioned above are categorised as networking as all of these build a network between the suppliers and the interviewed companies. See an example in figure 1. Company C builds its network with the wholesaler that sources from regional producers and delivers the ordered goods to company C.

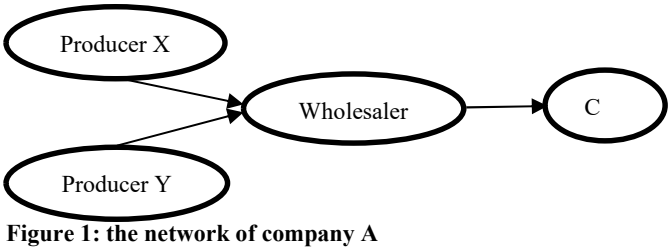

Figure 1: the network of company A

Company A and D also declared self-organisation and *self-production* as a local sourcing method. This means they produce the food themselves. This is the only category that is not counted to networking as there is no real network needed to procure food. The methods discovered in the interviews are summarised in figure 2.

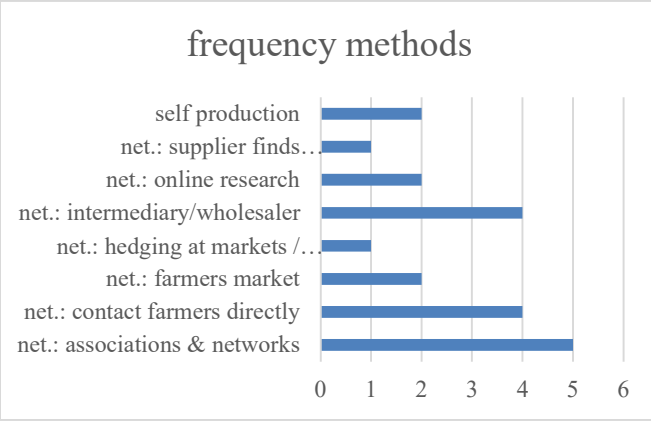

Figure 2: Methods, tools and practices used by companies to implement local sourcing. Net = networking.

4.3 Expectations of companies by sourcing locally

Figure 3 shows the different occurring expectations of the interviewed companies. The interviews revealed that expectations related to local sourcing are often not environmentally related but more economical or for marketing reasons. The companies C, D and F stated that they wanted to support the local economy and local producers in the first place. This was their first idea when they were asked what they expected from the implementation of local sourcing. Environmental reasons were only stated by company A who said it is their goal to increase environmental sustainability. Company G even stated that they answer customers' requests at first. However, these requests are increasing to source locally or regionally.

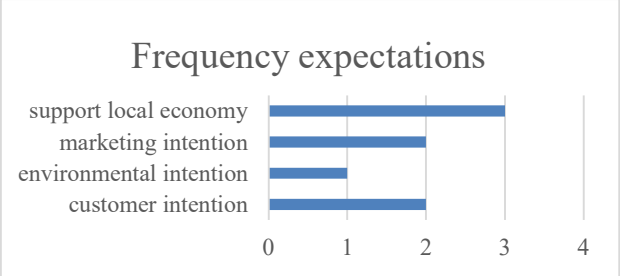

Figure 3: Expectations named by participants

4.4 Practical issues occurring while the implementation phase

From the interviews, different practical issues can be noted (see figure 4).

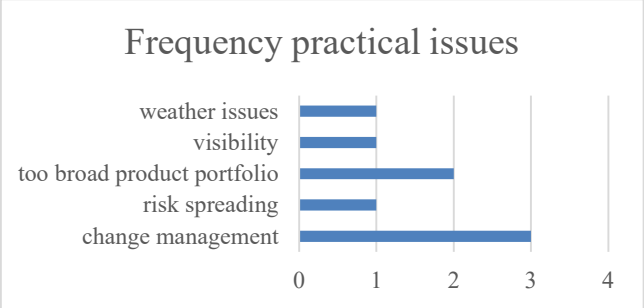

Figure 4: Practical issues experienced by interviewed companies

The most often named practical problem is change management. Company D stated that its head organisation had to take a step back to get everyone involved on board. These are stakeholders like employees, parents, partners, and suppliers. Suppose the goal of implementing a local sourcing strategy is not clear: In that case, stakeholders are likely to avoid engaging in the change process (company D). Company E and F stated that they experienced challenges with their local partners at the beginning of the partnership. Especially farmers who did not sell their goods regionally before had to be convinced of the possible advantages.

Next to change management, weather issues were named as a possible limitation to local sourcing. Company H sources fruits from a particular area in Germany and another European country. If the harvest is lost due to extreme weather events in the summer in Germany, the company cannot fulfil the customer requests without sourcing from another European country. This connects to the spreading of risk, which can be partly done with global or international sourcing. Another issue that came up in the interviews is the visibility and transparency of supply chains. While some argue that the supply chain gets shorter and more transparent through local sourcing, company H faced issues regarding the logistics and delivery of goods. This also happened because of specific customer requirements.

Another practical issue concerns the product portfolio of the interviewed companies. Company G, for example, stated that it is simply not possible for them to source all their goods locally because of their broad product portfolio.

4.5 Environmental advantages created by local sourcing methods

In this section, the support of environmental sustainability through local sourcing is reviewed.

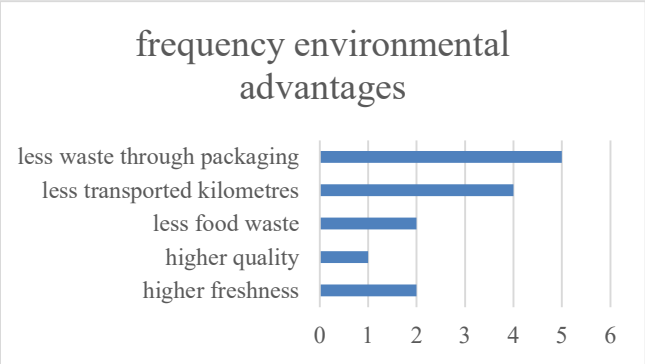

Figure 5: Environmental advantages named by participants

As seen in figure 5, the interviewees named some positive influences of local sourcing on the environment. Mostly named was that less waste through packaging is being produced. For example, company A prefers vegetables and fruits not to be packaged in plastic and delivered altogether in a box. Company C and D try to avoid packaging and instead use reusable packaging. Company H also omits packaging for some products as far as possible and is on the way to substitute plastic packaging with an innovative material.

Next to packaging, the shorter transportation was named by some of the interviewed companies as an advantage of the local sourcing strategy. Company A gets its vegetables and fruits from partners in the neighbourhood, for example.

Another advantage viewed by companies C and D is less food waste. They calculate and estimate more accurately how much will be eaten in their kindergarten and care home. In the context of local sourcing, food ordering is more flexible, which allows them to shorten or add things to the orders. Company D stated that when they were supplied by an extensive catering service responsible for several customers, the children did not like the food that much. It was thrown away quite often.

The last two advantages imply fresher and better products. The freshness was named as an ecological factor as with local sourcing, the food is not stored but used right away. This, in turn, increases the quality of the product. Quality is not an environmental advantage per se but a general advantage of local sourcing and worth being named here.

4.6 Additional findings and future trends

In addition to the focus on environmental sustainability, the answers of the interview partners draw attention to other sustainability aspects. Some companies mentioned the ethical and social parts that they consider while implementing local sourcing. For them, it is not all about the environment or economy, but also about the people they know (company D). It is important to them to give people a perspective and work to do so that they can live and run their family business.

As future trends, the companies think about expanding their local sourcing strategy (companies F and H) and meeting self-developed environmental goals (company H). Moreover, some believe that the importance of local food sourcing will grow even more with a change in the customers' shopping experience. Company G and I also aim to shorten their supply chains, so they go directly to the producers, cutting as many intermediaries as possible to increase transparency.

5. DISCUSSION

This chapter aims to find answers regarding the phrased sub-questions by comparing the interviewed companies and connecting the findings with the literature review results.

5.1 Sourcing methods from literature partly confirmed by interviews

5.1.1 Methods confirmed

Sub-questions 1 and 2 are about the local sourcing methods from literature and whether these were used in practice. Networking in different types was found in literature as a typical local sourcing practice (Pearson, 2011, p.892, Maier et al., 2020, p.8, Nischwitz and Molitor, 1998, p.64). The interviewed companies confirmed the use of networking as they all apply to some networking.

First, *associations and networks* were the most often named methods by interviewed companies to build up the local sourcing strategy. This was not explicitly named by the examples chosen from the literature. Companies A and I established long term relationships from associations and events like fair trades. Therefore, trust seems to be a critical component in their network and a successful recipe to implement local sourcing. This fits with the close collaboration named by Maier et al. (2020, p.8) as one of three success factors to implement local sourcing. As another example, Company G has networks established from earlier partnerships and fairs where the companies contact other potential suppliers.

As *intermediary/wholesaler* was named second most as a networking strategy, the light is shone on it now. Company B, C and D announced that they use a wholesaler for sourcing their products locally. Company B is contracted with a wholesaler that buys at the producers, bundles the goods, and delivers them to the canteens. Next to this, the company has special contracts with residential organisations that produce bakery products or meat in a region for this particular region. Company C is also contracted to a wholesaler. As a mandatory requirement, the wholesaler needs to have seasonal and regional products in its assortment. The collaboration is going on for some years now and works very well. Company C uses the wholesaler because it is more cost-efficient than buying all the goods themselves regionally. That would cost more than buying from the wholesaler, which gets different pricing from the producers. Company D, on the contrary, uses the wholesaler only for large amounts of goods that are then delivered collectively to the five kindergartens to save transportation. Company G and I indicated the use of intermediaries to source their products. The intermediaries for both are responsible for the connection with the suppliers or producers. Both companies aim at shortening the supply chain to be more transparent in terms of the origin of the food.

Striking is that the smaller interview partners conducted direct local sourcing via *farmers or farmer markets*. For example,

companies A and D have their network in their region (neighbourhood, same city).

5.1.2 Methods named by the companies but not found in the literature

Self-production is an alternative to food sourcing found in the interviews. Company A, for example, raises bulls themselves to make beef. In contrast, company D uses the pedagogical purpose of the kindergarten to show the children how carrots or potatoes grow and end up on the plate. Company D also walks with the children on a farmers' market to buy vegetables and fruits in a possible fresh manner.

Internet research was named by companies A and G to find suppliers that can support with good and gather a quick overview. This might not be named in the literature as an explicit method as it might be obvious to use the Internet nowadays to gather information.

As a new method, *hedging at markets and stock exchanges* was identified. This was only named by company H to procure flour in Germany. Here, it is aimed for the best price for a massive amount of the product. The company is working very future-oriented; so, buying at an earlier point of time than the flour is actually needed and hopefully cheaper than it would be if required.

Another possibility to grow a network and partnerships for the local sourcing strategy is that the buying company receives offers from suppliers. So, the *suppliers contact them*, offering their assortment of goods. Company G stated this as a growing trend in their experience.

5.1.3 Methods named in literature but not in the interviews

What was found in the literature but not named by the interviewees is the use of a *retailer*. While Tongarlak et al. (2017, p.110f) think that the retailer is a practice used, the interviewed companies do not have this network. One reason for this might be that two of the interviewed companies were retailers themselves (E and F). So, they *are* the retailer in the supply chain. It is observed that they do not make use of the suggested intermediary as Tongarlak et al. propose. Another part of Tongarlak et al. (2017, p.110f), namely the organisation of backhauling, is not named by any of the companies. They all are common in that the logistics should be organised accurately. However, it was not explicitly named to minimise empty runnings, which does not mean that they are not pursuing or considering it. This could be a point to work on in further research.

To sum up, it needs to be mentioned that the methods are not mutually exclusively used by the companies. This means, most companies did not name only one plan for local sourcing implementation but a mixture of it. For example, company A has two farmers that deliver vegetables and fruits to them as producers. They produce what can grow regionally and seasonally in Germany; the other fruits are imported. In addition to direct contact with farmers, company A also uses Internet research and grows bulls themselves. Company B and F make use of different wholesalers and regional networks. The kindergarten (company D) is the most flexible and diverse one as it buys at the farmers market, uses a wholesaler, a supermarket and grows vegetables themselves. Company E is supplied by different regional suppliers for vegetables, fruits, pork, eggs, and dairy products but is also bounded to the suppliers of its supermarket chain. Company G and I use different intermediaries, not only one.

So, to answer sub-question one and two in short, it can be said that some of the methods found in the literature (wholesaler, farmers market) are used and even extended. In contrast, others are not used because of the participant's position in the supply chain (retailer). The interviewed companies also gave new insights to work on.

5.2 Motives and expectations are not necessarily connected to environmental sustainability

Sub-question three addressed the expectations that buying companies had while implementing local sourcing. As most of the time, the *support for the local economy* was mentioned as an expectation from local sourcing, it seems that the protection of the environment is a second-priority reason to source food locally. Even customer and marketing intentions were named more often than environmental goals.

Companies C, D, and F all want to support the local economy, while companies A and G refer to the customer intention. Companies E and H aim at satisfying the customer need for marketing purposes. Interestingly, company A stated that it sources for environmental reasons and expects to fulfil the customer request by a local sourcing strategy.

Applying the expectations found in the interviews to the **expectancy theory** (Robbins et al., 2014, p. 138) means that the performance–reward relationship can be identified in the following way. Companies C, D, F implement local sourcing (performance) to support the local economy (reward). This reward is convincing enough to implement local sourcing. This would also count for the companies that named customer or marketing intentions or environmental protection as "rewards". This would be how the theory can be applied here. The performance stays the same, but the reward changes.

To sum up, the participants' expectations led to the performance of implementing local sourcing to gain the expected reward of supporting the local economy, the environment or other reasons.

5.3 Practical issues need consideration

Sub-question four dealt with challenges and practical issues faced by the interviewed companies. Companies D, E and F shared experiences with issues in change management. While E and F talked about external matters, namely problems with partners, company D shared internal issues with change management. For example, convincing the partners and producers of local sourcing can be a practical issue that needs to be considered while implementing a local sourcing strategy (external). Also, involving the affected stakeholders (employees) must be considered crucial to making the local sourcing strategy happen. As company D shared, there were decisions taken that were clear for top management. However, the employees, namely the kindergarten teachers, needed to be involved and

convinced of the necessity to implement local sourcing. They were convinced, but it should have been more slowly in the beginning, according to company D, to get everyone involved right away. Company C managed to get everyone on board from the start. They stated that they also included the inhabitants of the special-care home to make them feel good about the local food. This was done by events like a try-out week with fresh regional food versus non- regional food.

Next, the product portfolio of the interviewed companies plays a role in implementing local sourcing. Company G, for example, stated that it is simply not possible for them to source all of their goods locally because of their broad product portfolio. Company H agrees on that. If the article portfolio exceeds a specific range, sourcing everything locally is illusional.

The interviewees named risk spreading, weather conditions and visibility of the supply chain as issues faced while implementing local sourcing. Since each was only mentioned once, a comparison is not possible here. The experiences are more shared in detail now. Regarding weather conditions and risk spreading, company H shared its experiences. With the dependency on the German weather, which is unsteady and not very reliable from time to time, solutions are needed to make sure to be able to serve the customer's needs. By sourcing from two sources, the risk of not serving customer requests is decreased as there is a backup supplier. Therefore, risk spreading sometimes implies deviating from the local sourcing strategy.

Company H faced issues with the visibility and transparency of the supply chains. This is because of the different prospects that come from various stakeholders: the customer of company H has special requirements regarding the delivery of the raw materials, but this includes an extension of the supply chain, which is not in the sense of company H. Therefore, it happens from time to time that the visibility gets lost if the logistics of the goods is not organised properly. This would weigh up the advantage of local sourcing, which was named in literature: shorter transportation.

To sum up, the practical issues associated with the interviewed companies could hinder the successful implementation of local sourcing. Therefore, they need to be considered and thought about how to avoid before the implementation starts.

5.4 Environmental advantages exist but depend on conditions

As sub-question five was about the support for the environment, it is addressed here. One observation of the interviews is that some interviewees question the role of local sourcing to support environmental sustainability. It seems that the organisation and logistics of the local sourcing strategy need to be well-considered and thought about to make it happen and sense for the environment. It is about reducing transported kilometres although multiple short transports are necessary, leading to an even longer way and higher CO_2 emission. For example, company H believes that excellent logistics is crucial to make sense of local sourcing, which also counted to the practical issues.

So, from the results, it was seen that mostly less packaging was viewed as an environmental advantage (companies A, C, D, G, H). They all try to avoid packaging at all or use reusable materials. Company H stated that its customers "force" it to come up with renewable materials and reduce the plastic parts in their packaging or reduce packaging at all with clear deadlines.

Fewer food miles were viewed by companies A, C, G and H as an environmental advantage. However, company H is also critical about it. Company C connects the shorter transportation with an increased freshness and quality as additional advantages.

Less food waste is possible due to the higher flexibility given by local sourcing. Company D, for example, goes to the farmers' market if they miss something in their kindergarten and can buy it in the amount it needs it.

Fresher and better products were also named as advantages. The freshness was also named by literature as a general advantage of local sourcing connected to the product life cycle.

Some of these environmental advantages were named in literature (Jones et al., 2004, p.330; Ilbery and Maye, 2005, p.332; Sarkis, 2020, p.67).

To sum up and answer the sub-question (how do the local sourcing methods support the environmental friendliness of large buyers?), it can be said that the sourcing methods lead to (perceived) fewer food miles, less packaging and waste, and fresher and (perceived) better products.

5.5 All sustainability factors need to be considered in implementing local sourcing

Also often named by the interviewed companies was the third component of sustainability - the social or ethical aspect. Companies B, D and H stated that the moral element should be considered next to economic and environmental sustainability. Company B, for example, wants to support the local farmers in running their family business. This shows that economic and social sustainability do not exclude each other. Company D argues that prices should be socially justified and that everybody has a moral and ethical responsibility. Company H adds that certificates of production could be an indicator for working conditions and fair trade. Therefore, it seems that the focus should not be on only one of the three aspects but also on ensuring that sustainability works out.

5.6 Future of local sourcing – opinions of the interviewed companies

The interviewed companies view their future regarding local sourcing quite differently. While companies F and H will expand their local sourcing strategy, others focus on other projects first (company G and I). Their turnover supports company F to broaden the local sourcing of food, and it is convinced that the trend of local food will continue and grow. Company H has a whole sustainability project, of which local sourcing is one part. Company A and C plan to continue the local food sourcing as it is now and improve some aspects. Company C, for example, extends local sourcing also to cleaning agents that are also organic. Speaking of organic, company D is satisfied with its local food sourcing and wants now to focus on locally sourced food that is organic. That is their next step. Company B mentioned a new project in Germany of so-called food hubs where food is shopped online by consumers. The company aims to create even more transparency for their guests in the canteens

about the origin of the food by producer profiles. Company E aims at finding a reliable partner in the region to supply them with beef. It also feels that consumer behaviour will change within the next 10 to 20 years to a more adventurous shopping experience. Companies G and I want to focus on shortening their supply chain to get to the producers and make the place of origin more transparent to the consumers.

6. CONCLUSION

This research aimed to get deeper insights into the local sourcing activities of buying companies in the food sector answering the research question *How can local sourcing methods support large buying companies in the German food industry in order to improve their environmental sustainability performance?*

To answer the research question, it was at first necessary to know which methods exist to implement local sourcing. This was found by a literature review. After knowing this, it was interesting to know *why* the companies implemented local sourcing. Namely, if it was for an environmental purpose or for other reasons. Also, interesting to know is the practical challenges for the implementation to get an idea of what to consider when implementing local sourcing. Lastly, to get the point of the environmental part, the actual advantages for the environment by local sourcing needed to be realised. This research followed a qualitative research method using a literature review and semi-structured interviews.

From this research, it can be concluded that networking in different variations can encourage the implementation of local sourcing, which in turn supports the environment. The findings indicate that there are ecological advantages through local sourcing and different methods affect these advantages. Local sourcing needs proper planning and organisation to be successful in terms of environmental sustainability. Furthermore, it seems that sustainability works successfully if all three terms (economic, environmental, and social sustainability) are considered and play together. There is an interconnectedness found between the methods. So, no method was pursued alone; a mixture is utilised. Each company planning to implement local sourcing must check which methods suit them, what to consider, and how this affects sustainability.

7. IMPLICATIONS FOR FUTURE RESEARCH AND LIMITATIONS

This research has practical implications for food buying firms. Namely, that preparing a local sourcing strategy can aim better at what to consider and check to avoid challenges. Furthermore, food buyers have an idea of what ecological advantages to expect from local sourcing. Moreover, policy and governments should take more responsibility to highlight the advantages of local sourcing for everybody if the three parts of sustainability are considered equally. This research allows further research into the local sourcing methods in the food sector and how to improve the environmental performance and bring together all three sustainability terms. Other industries and regions could conduct the research approach (collecting methods, interviewing companies).

Limitations of this research might be, at first, the limited size of the data set as nine interviews cannot give a generalisable conclusion. Secondly, regarding generalisability, it needs to be considered that the interviewed partners were quite diverse, so it needs to be noticed that there might be several solutions for implementing a local sourcing strategy. Therefore, any company needs to examine which methods suit them and their concept. Moreover, the validity of the research results might be limited to the specific region and industry where the research is done and therefore could not be transferred to other sectors and regions. Reasons for that might be cultural and managerial differences that need to be reflected on. Another limitation might be any bias that might have occurred during the research, for example, the choice of interview partners, the answers of the interview partners who might want to put themselves in a better light, or the definition of local that differs from company to company.

8. ACKNOWLEDGMENTS

My thanks to my examiners Prof. Dr. Knight and Dr. Vos, for their tutoring and support during this thesis. Also, Ms Peters, who gave helpful input and feedback, should be named here. Furthermore, I would like to thank all the interview partners for sharing their experiences and spending their time with me. Finally, thanks to my family and friends who encouraged me during this process.

9. REFERENCES

Alsaawi, A. (2014). A critical review of qualitative interviews. European Journal of Business and Social Sciences, 3(4), 149-156. doi:http://dx.doi.org/10.2139/ssrn.2819536

Braun, C., Rombach, M., Häring, A., & Bitsch, V. (2018). A Local Gap in Sustainable Food Procurement: Organic Vegetables in Berlin's School Meals. Sustainability, 10(11). doi:10.3390/su10114245

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. doi:10.1191/1478088706qp063oa

Brunori, G., Galli, F., Barjolle, D., van Broekhuizen, R., Colombo, L., Giampietro, M., . . . Touzard, J.-M. (2016). Are Local Food Chains More Sustainable than Global Food Chains? Considerations for Assessment. Sustainability, 8(5). doi:10.3390/su8050449

Brunori, G. (2007). Local food and alternative food networks: a communication perspective. *Anthropology of food*(S2). doi:10.4000/aof.430, available at https://journals.openedition.org/aof/430; accessed 17/05/2021

Choi, T.-M. (2013). Local sourcing and fashion quick response system: The impacts of carbon footprint tax. *Transportation Research Part E: Logistics and Transportation Review, 55*, 43-54. doi:10.1016/j.tre.2013.03.006

Cousins, P., Lamming, R., Lawson, B., Squire, B. (2008). Strategic Supply Management: Principles, Theories and Practice. Pearson.

Ferguson Aikins, E., & Ramanathan, U. (2020). Key factors of carbon footprint in the UK food supply chains: a new perspective of life cycle assessment. *International Journal of Operations & Production Management, 40*(7/8), 945-970. doi:10.1108/ijopm-06-2019-0478

Forsa Politik- & Sozialforschung GmbH (2021). Ernährungsreport 2021 - Ergebnisse einer repräsentativen Bevölkerungsbefragung. Bundesministerium für Ernährung und Landwirtschaft (BMEL), accessible in German on: https://www.bmel.de/DE/themen/ernaehrung/ernaehrungsreport2021.html (retrieved May 2021)

Fratocchi, L., Di Mauro, C., Barbieri, P., Nassimbeni, G., & Zanoni, A. (2014). When manufacturing moves back: Concepts and questions. *Journal of Purchasing and Supply Management, 20*(1), 54-59. doi:10.1016/j.pursup.2014.01.004

Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. Environmental Quality Management, 8(1), 37-51. doi:10.1002/tqem.3310080106

Giunipero, L. C., Bittner, S., Shanks, I., & Cho, M. H. (2018). Analysing the sourcing literature: Over two decades of research. Journal of Purchasing and Supply Management, 25(5). doi:10.1016/j.pursup.2018.11.001

Goggins, G., & Rau, H. (2016). Beyond calorie counting: assessing the sustainability of food provided for public consumption. *Journal of Cleaner Production, 112*, 257-266. doi:10.1016/j.jclepro.2015.06.035

Ilbery, B., & Maye, D. (2005). Food supply chains and sustainability: evidence from specialist food producers in the Scottish/English borders. Land Use Policy, 22(4), 331-344. doi:10.1016/j.landusepol.2004.06.002

Ivanov, D., Tsipoulanidis, A., & Schönberger, J. (2019). Global Supply Chain and Operations Management (Vol. 2). Springer Publishing. https://doi.org/10.1007/978-3-319-94313-8

Jin, B. (2005). Global sourcing versus domestic sourcing: Implementation of technology, competitive advantage, and performance. Journal of the Textile Institute, 96(5), 277-286. doi:10.1533/joti.2003.0066

Jones, P., Comfort, D., & Hillier, D. (2004). A case study of local food and its routes to market in the UK. *British Food Journal, 106*(4), 328-335. doi:10.1108/00070700410529582

Krishnan, R., Agarwal, R., Bajada, C., & Arshinder, K. (2020). Redesigning a food supply chain for environmental sustainability – An analysis of resource use and recovery. Journal of Cleaner Production, 242. doi:10.1016/j.jclepro.2019.118374

Lehtinen, U. (2012). Sustainability and local food procurement: a case study of Finnish public catering. *British Food Journal, 114*(8), 1053-1071. doi:10.1108/00070701211252048

Maier, P., Klein, O., & Schumacher, K. P. (2020). Ecological benefits through alternative food networks? Prospects of regional barley-malt-beer value chains in Bavaria, Germany. Journal of Cleaner Production, 265. doi:10.1016/j.jclepro.2020.121848

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.

Morelli, J. (2011). Environmental Sustainability: A Definition for Environmental Professionals. *Journal of Environmental Sustainability, 1*(1), 1-10. doi:10.14448/jes.01.0002

Nischwitz, G., Molitor, R. (1998). Regionale Nachfragepotentiale in der Produktlinie Ernährung. *Institut für ökologische Wirtschaftsforschung,* 135, 3-86. (in German)

Pearson, D., Henryks, J., Trott, A., Jones, P., Parker, G., Dumaresq, D., & Dyball, R. (2011). Local food: understanding consumer motivations in innovative retail formats. British Food Journal, 113(7), 886-899. doi:10.1108/00070701111148414

Quarshie, A. M., Salmi, A., & Leuschner, R. (2016). Sustainability and corporate social responsibility in supply chains: The state of research in supply chain management and business ethics journals. *Journal of Purchasing and Supply Management, 22*(2), 82-97. doi:10.1016/j.pursup.2015.11.001

Robbins, S. P., Judge, TA (2014). Essentials of Organizational Behavior (Vol. 12). Pearson

Sarkis, J. (2020). Supply chain sustainability: learning from the COVID-19 pandemic. *International Journal of Operations & Production Management, 41*(1), 63-73. doi:10.1108/ijopm-08-2020-0568

Saunders, M.N.K, Lewis, P., Thornhill, A. (2019). Research Methods for Business Students (Ebook). 8th Edition. Pearson, accessed in May/June 2021 through https://ebookcentral.proquest.com/lib/itc/detail.action?docID=5774742

Tongarlak, M., Lee, D., Ata, B. (2017), Mechanisms for Increasing Sourcing from capacity-constrained Local Suppliers. Decision Sciences 48 (1), 108-148. Doi: 10.1111/deci.12204

Tukker, A., Jansen, B. (2006). Environmental Impacts of Products: A Detailed Review of Studies. Journal of Industrial Ecology, 10 (3), 159-182. DOI: 10.1162/jiec.2006.10.3.159

Tunisini, A., Bocconcelli, R., & Pagano, A. (2011). Is local sourcing out of fashion in the globalisation era? Evidence from Italian mechanical industry. Industrial Marketing Management, 40(6), 1012-1023. doi:10.1016/j.indmarman.2011.06.011

Walker, H., Di Sisto, L., & McBain, D. (2008). Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of Purchasing and Supply Management, 14*(1), 69-85. doi:10.1016/j.pursup.2008.01.007

Walker, H., Lindgreen, A., Brammer, S. (2009). Sustainable procurement in the United Kingdom public sector. *Supply Chain Management: An International Journal, 14*(2), 128-137. doi:10.1108/13598540910941993

Watts, M., Ebutt, D., (1987). More than the sum of the parts: research methods in group interviewing. British Educational Research Journal, 13 (1), 25-34. Doi: https://www.jstor.org/stable/1501227

10. APPENDICES

Appendix A

Journal Research (literature review)

Journal	Papers in period (2019-2021)	Papers relevant according to abstract	Usable and assessed papers	Keywords
International Journal of Production and Operations management	150	17 (some overlaps with journal of operations management)	0	
Industrial Marketing Management	603	7	3	Environmental sustainability practices;
International Journal of Supply Chain Management / Journal of supply chain management	1,362 / 1,523 (overlaps with International Journal of SCM)	30 (access problems: access denied on several pages)	-	From title and abstract: Sustainable procurement; green supply chain practices;
Journal of Operations Management	551	15	3	Green supply chain management; localisation, local buying,
International Journal of Physical Distribution and Logistics Management	117	6	0	
Journal of Purchasing and Supply Management	102	18	5	Environmentally friendly procurement; re-/backshoring; environmental purchasing; environmental purchasing and supply management (EPSM);
International Journal of Procurement Management	91	7	3	WECD/Brundtland report; sustainable procurement; domestic sourcing;
Journal of Public Procurement	44	1	0	Public procurement, green / government procurement
International Journal of Integrated Supply Management	35	8	2	Sustainability, sourcing, sustainable supply chain (management), triple bottom line;

Appendix B

interview guide incl. questions

Topic	Questions	Sub-question
Starting Question	To what extent do you source locally? (half / quarter / three-quarter…)	
Local sourcing	What kind of local sourcing practices /methods/tools do you pursue? Why?	How did you come up with the local sourcing strategy? Did you study literature, other sources or trial and error?

	Did you have certain expectations from implementing local sourcing (for example, a better reputation among customers)?	
	Do you experience challenges while pursuing or implementing a local sourcing strategy?	➔ If yes, what kind of challenges? ➔ How did you deal with these challenges? (e.g. certain processes/regulations)
Environmental sustainability	Which benefits do you recognise from the implementation of local sourcing for the **environment?**	
	What do you think about local sourcing as a tool to improve the environment?	➔ How do you ensure that your local sourcing methods really improve the environment? (e.g. labelling of suppliers)
	Does your company think environmental sustainability is a driver for the implementation of local sourcing?	➔ If yes / no → why?
Closing question	What would you recommend to other companies or institutions that plan on implementing local sourcing?	
	What are the future plans of your company regarding your local sourcing practices (e.g. expanding)?	Which trends do you see in local sourcing in general?
	Is there anything else you would like to mention or share?	

Appendix C

Code's overview

Category	no of codes	Code - name
criticism local sourcing	3	dependency on suppliers quality question use of local sourcing for environmental sustainability
local sourcing methods	8	Networking: associations and networks Networking: contact farmers directly Networking: farmers market Networking: hedging at markets / stock exchange Networking: intermediary/wholesaler Networking: online research Networking: supplier finds customer self-production
practical issues	5	change management risk spreading too broad product portfolio visibility weather issues
future trends	9	expand local sourcing innovation marketing

		shorten supply chains change of shopping experience customer demand environmental improvements growing importance of regionality transparency
environmental advantages	5	higher freshness higher quality less food waste less transported kilometres less waste through packaging
expectations	4	customer intention environmental intention marketing intention support local economy
other	3	amount of local sourcing ethical / social aspect local sourcing advantages (general)