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Local food supply chain in North-Western Norway

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Preface

First and foremost, we would like to show our deepest gratitude to Associate Professors Heidi Hogset and Per Engelseh, our two supervisors, who have provided us with valuable guidance in every stage of the writing of this thesis. Without their illuminating instructions, impressive kindness and patience, we could not have completed our thesis.

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Molde, August 2015

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Abstract

Demand for local foods is growing. This provides an opportunity for farmers to capture more of the value added in food production, and increase their income base. In Norway, the government is supporting local food production as a supplement to the conventional agricultural policies, that generally favor mass production of foods. In contrast, local food production is dominated by small entrepreneurs, who are unable to capture economies of scale.

This study focuses on the challenges these small producers face in the area of logistics, by analyzing the supply chain of six local food producers located in North-Western Norway. We found that:

1. Many local food producers started this business because they are unable to find other employment. Many women see small-scale business as a good way to combine work and caring for a family.
2. Local products is small-scale production with high frequency transportation.
3. The transportation way is mainly self-managed logistics. For more distant destinations, they use joint distribution, or third-party logistics.
4. The competitive advantage of local business is differentiation in the market. It meets the special demand and creates customer loyalty associated with traditional culture.
5. The dependence is relatively high in buyer-supplier relationships. Local producers usually have a good communication and personal connection with their suppliers and customers.
6. Horizontal integration has already appeared in local food supply chain. Several producers tied together to share information, transportation and marketing.
7. Vertical integration between firms is very need to strengthen. The use of electronic information technology and joint transportation system can facilitate inter-firm integration.

Keywords: Local food, supply chain management, purchasing, integration

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1.0 Introduction

1.1 Background

Local food has become more popular in western countries. The local food with simple packaging usually charge a higher price than other food products. But people are willing to pay because they think local food is better than other food. It is produced or processed in the neighborhood. Additionally, it gives transparency and confidence to customer. Therefore, the demand for this kind of food is increasing in recent years. The retailer Coop Mega has a special local food section in their supermarket. It says they are willing to sell more local food because of increasing customer demand and decent profit. But there are few local producers left after agriculture industrialization all over the world. For local society and government, protection of local food is a way of protecting local culture and ethnic society.

We choose Møre og Romsdal County as our study site. This is a province of Norway, situated on the western coast. Norway is a high-cost country where agriculture faces special challenges. Norwegian agriculture is highly protected and subsidized, but is still struggling. Even industrialized agriculture cannot offer farmers an income that can compete with the general wage level. However the Norwegian government believes the recent growth in demand for local foods offers farmers new opportunities, as local food production means farmers can add more value to their products, and thus achieve higher earnings. That is why the Norwegian government is supporting the development of local food production.

1.2 Research problem

The main research problem is that a transition from more large-scale to more small-scale production is contrary to general trends in the agricultural sector, and entails a movement away from capturing economies of scale. There could be economies of scale lost in both production and marketing. This thesis focuses on the marketing side - getting products from the producer to the retailer, i.e., the logistics aspect.

We will explore local food system with focus on the logistics. In general, a local food system is a shorter supply chain than other food supply chains. Logistics costs may matter

more to small and medium sized companies. This study focuses on the challenges these small producers face by analyzing the supply chain of six local food producers located in North-Western Norway.

The study uses Coop Mega in Molde as its point of departure. This is a big supermarket chain in Norway. We interviewed the director of Coop Mega in Molde first and we got a list of the local food producers who supply Coop. Then we chose six suppliers as our sample and interviewed them to get information about their products, advantages compared to inventory food, transportation, marketing channels and profit etc. This thesis will describe the supply chain of local foods and show the full value chain from raw material at ground until finished product in customer's hand. At last, we will evaluate the supply chain whether it is efficient or not and discuss which part can be improved.

2.0 Literature review

2.1 Local food definition

The definition of Local food is different for each person based on their perspectives. A common explanation is that “Local” means production close to consumption (Feagan, 2007) : “Buy the food from your neighbors”. Normally, it is a geographic issue, defined by means of kilometers or miles. According to a survey conducted in the United States, half of the consumers surveyed described “local” as “made or produced within a hundred miles” of their homes, while another described “local” as “made or produced in my state.” But for each organization, the distance is different. For consumers, the concept of local links to many factors like production methods, cultural context, distribution areas and place of origin (King et al., 2010). Each customer has their own ideas to define local. Besides, commodity types, marketing channels and company size should also be taken into consideration to distinguish local food from industrial food. Most local food chains are simple. Often, products are marketed directly from farmers to consumers. Intermediates are usually used by conventional food and larger sized local food producers which can be seen as conventional food also (Low and Vogel. 2011). For the local governor of Iowa in the USA, the definition of local is clearly restricted within a fixed geographic range where the value creation is placed under local authorities’ control (Hinrichs. 2003). The definition of the local governor of Møre og Romsdal is the same according to our interview.

2.2 Characteristics

Local food normally includes several types like vegetables and fruits, dairy products, meats, sea foods, syrup and so on. In general, local food has inherent advantages compared to industrial food in terms of quality (Abatekassa and Peterson, 2011), sustainability, transparency and food safety (Wognum et al., 2011), social embeddedness like culture, tradition and history (Winter, 2003). Moreover, consumers expect local foods to be associated with improved nutrition-health and less diet related disease, because small-scale farmers focus more on the environment and sustainability of the land while conventional food producers care more about productivity and net profit. For example, farmers prefer to use less pesticide and chemicals, use organic fertilizers, use minimal packages or even no packages to customer and minimize transportation(King et al., 2010).

The concept of food mile describes the range of travel distance between place of origin and market. Less food mile will lead to less pollution, less transportation costs and higher nutrition because of freshness. It also means it is possible to harvest more close to maturity (Kemp et al., 2010). But it is not simply a question of local is better than global. (Coley et al., 2009) shows that if the customer drives more than 7.4km to buy local food the carbon emission is higher than the emission of big truck transportation of ordinary food.

2.3 Food supply chain

The local food supply chain has shorter transportation distance, less volume, and a variety of local market channels; for instance, farmers' market, farm shops, collective farmers' shops, community-supported agriculture, and solidarity purchase groups. So it is also known as “short” food supply chain. The transportation distance is within a small range. The main transportation is by their own vehicles because the production volume is quite small. The strength of the producer-customer relation is hard to characterize. It may be more close or even not seen as business relationship at all(King et al., 2010). Compared to inventory food supply chain, a local food supply chain is disorderly because it lacks a schedule for transport.

2.4 Problems and challenges

Local farmers are more likely to use environmental friendly production (Martinez et al., 2010). However economic imperative and survival of local food are inconsistent with environmental sustainability. Some local producers use conventional rather than traditional production when the quality is not sufficient (Ilbery and Maye, 2005).

Effective transportation is a major challenge of local food. Most local farmers choose to deliver by themselves. Under this situation, increasing transportation cost is the inevitable problem for local foods farmers.

In general, the marketing channel of local food has two primary forms: direct-to-customer and direct-to-retailer. (Brain,2012) Although customers are interested in local food, only a small part of people seek to purchase them according to the market studies (Weatherell et al., 2003). There exists some barriers like price and inconvenience which prevent people from purchasing local food. Therefore the enthusiasm about local produce is greater than the actual purchase. Additionally, owing to modern lifestyle, customers prefer to make

purchases in the supermarket because it is convenient and time-saving (Chambers et al., 2007).

For the majority of customers, supermarkets is the preferred first choice for accessing local food. Therefore, most small local producers want to find a place for their products in supermarkets. Coop Mega is a large supermarket chain in Norway. This study is based on one supermarket which is located in the city of Molde, in Møre og Romsdal county. We start from this supermarket and interview its small local producers or suppliers. In this way, we can get the whole food supply chain from the farmers to the end consumers who are of this particular supermarket. Our aim is to map the logistics flow from downstream to up and try to assess the competitiveness of this local food distribution.

2.5 Future development

The direction of local food future development is to solve sustainability problems to make logistics more efficient, reduce environmental degradation, increase food transparency and explore potential markets (Bosona and Gebresenbet 2011). In general, it means to develop a coordinated distribution system. This goal can be achieved in several ways.

A project called Local Food Hub (LFH) in the United States may be a good way to solve the problem of high transportation costs. LFH provides collective packaging, transportation as well as stable income for farmers. Also, it has no impact on other marketing channels of farmers because LFH is operated by a nonprofit organization (Diamond, 2014).

More information about the advantages local food gives to customers can encourage people to buy more of it since people care about food safety and health. Traceability requires information to pass down through different actors, covering both technique and organizational aspects (Engelseth, 2009). The advantage of traceability can be obtained through network integration. Conversely, if each producer uses their own network it will increase difficulties of follow up (Bosona and Gebresenbet 2011). But the cost is expensive, so that over 99% of companies cannot afford it although they have interest. Besides, other factors which can affect the quality of food will be taken into account in the future like vibration, light, temperature (Manzini and Accorsi, 2013).

2.6 Supply Chain Management and Logistics

With the development of information networks, supply chain management (SCM) is regarded as the key business drivers for the enterprise to stay competitive in the context of globalization. Ellram and Cooper (1993) define supply chain management as "an integrating philosophy to manage the total flow of a distribution channel from supplier to ultimate customer". Monczka and Morgan (1997) state that "integrated supply chain management is about going from the external customer and then managing all the processes that are needed to provide the customer with value in a horizontal way".

A supply chain (SC) is a network of partners who collectively convert a basic commodity (upstream) into a finished product (downstream) that is valued by end-customers, and who manage returns at each stage (Harrison and Hoek 2008). The Global Supply Chain Forum (GSCF) has defined the SCM as: "the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders" (Lambert et al., 1998).

From a business perspective, SCM is the means for enterprises to gain competitive advantages by improving the upstream and downstream relations and integrating the information flow, material flow and finances flow in the supply chain. The objective of SCM is to try to reduce costs and maximize the added value.

According to Lambert et al., (1998) logistics is "that part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services and related information from the point-of-origin to the point-of-consumption in order to meet customers' requirements."

As a subset of SCM, logistics is the task of coordinating material flow and information flow across the SC. Harrison and van Hoek (2005) state that "the logistics task of managing material flow and information flow is a key part of the overall task of supply chain management".

2.7 Purchasing

Purchasing is a segment of the supply chain management. Terms like purchasing, procurement, supply chain management, and logistics management are used interchangeably. According to Kauffman (2002), purchasing is “a major function of an organization that is responsible for acquisition of required materials, services and equipment”.

In short, purchasing is the formal process of buying goods and services. It is the activity of acquiring goods or services to accomplish the goals of an organization. The target of purchasing management is to get the right quantity and the right quality goods from the right supplier at the right price to the right location.

2.7.1 Supplier Selection

Purchasing decisions is important in purchasing process. In order to survive and stay competitive in the industry market, purchasing becomes more and more dependent on finding the right supplier. (de Boer et al., 2001) Therefore supplier selection is one of the most important activities of the purchasing function for the enterprise.

Van Weele (2001) claims that efficient and constructive relationships with the suppliers are a key point of the firm’s short-term financial position and long-term competitive power. There exists variable factors which affect stable partnership in the supply chain. For many of supply chain members, some factors like dependency, conflicts and mutual trust can jointly affect the establishment of partnership. According to Buvik (2002), in a symmetric partnership, the stronger the dependence on each other, the easier it is to establish long-term strategic cooperative relations, which is also more likely to improve the performance of cooperation.

2.7.2 Competitive Strategy

Competitive strategies are a method by which enterprises achieve a competitive advantage in the market. Without a competitive advantage a company cannot have a profitable business model. According to Porte (1985), there are three basic types of competitive advantage: cost leadership, differentiation and focus strategy.

The first strategy is *cost leadership*. The aim of this strategy is to minimize costs for the end product by selecting appropriate suppliers and production methods. Porter (1985) claims that by successfully using cost leadership, a buying company obtains a large market share. Additionally, Porter (1985) indicates that product quality and service should be realized as well, but costs come first.

The second strategy is *differentiation*. According to Porter (1985), a differentiation strategy refers to supply or market a product that is different from those of the competition in order to meet customers' special needs. It can potentially reduce price sensitivity and improve brand loyalty from customers.

The last one is *focus*. As Porter (1985) explains, the marketing to a homogenous customer group may not be an effective strategy for the product. The objective of a focus strategy is to focus on clearly selected market segments.

2.7.3 The Kraljic Portfolio Matrix

The Kraljic Portfolio Purchasing Model was created by Peter Kraljic. This matrix is used as the company's purchasing portfolio analysis tool. It can help buyers maximize supply security and reduce costs, by making the most of their purchasing power. (Kraljic, 1983).

Kraljic's approach uses two important factors involved in the procurement as its dimensions: supply risk and profit impact. The supply risk refers to product availability, purchasing opportunities, number of potential suppliers, complexity in supply markets, storage risks and product substitutes. On the other hand, the profit impact should be evaluated by total costs, purchase volume, percentage of total purchasing cost and impact on product quality (Van Weele, 2000). The consequence is a 2x2 matrix, which is divided into four categories: Leverage, Strategic, Non-critical, and Bottleneck items.

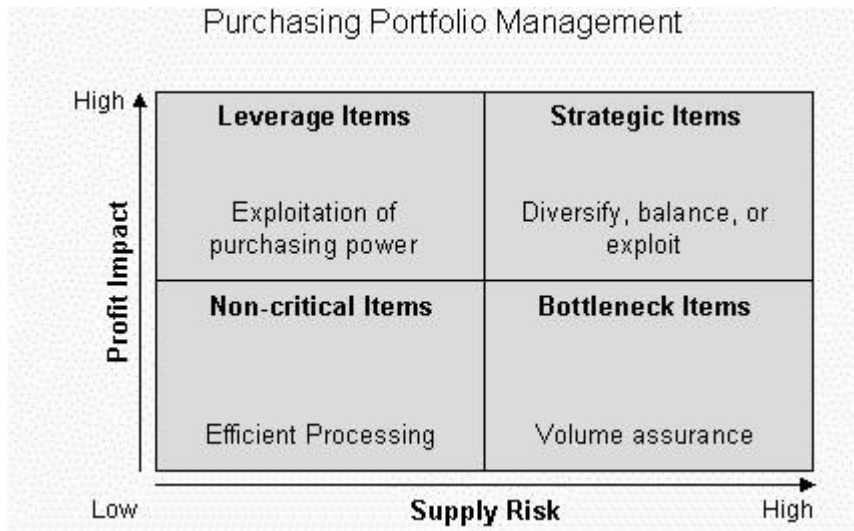


Figure 1: The Kraljic Portfolio Matrix

(source: http://blog.sina.com.cn/s/blog_71ed61470101277x.html)

Leverage products: In general these are the products that can be obtained from various suppliers with standardized quality grades. It is easy to find alternative supplies. Therefore, buyers have higher purchasing power. It is a buyer-dominated relationship (Van Weele, 2000).

Strategic products: According to Van Weele (2000) these are high technology, high volume products which are often supplied at customer specification. Strategic products are often sourced from one supplier. Therefore, it will generate high supply risk although the buyer has strength.

Non-critical products: These products are more or less standardized, produce few technical or commercial problems, and have many substitutes available in the supply markets (Van Weele, 2000).

Bottleneck products: Van Weele (2000) states that these products have “a relatively limited value in terms of money but they are vulnerable in regard to their supply”. These products are often sourced from one specific supplier and it has low profit impact, so it is a supplier-dominated relationship.

2.7.4 Transaction Cost Analysis

Transaction cost analysis (TCA) keeps the inter-firm transaction as the basic unit of analysis (Buvik, 2001). A transaction is an economic exchange between a buyer and a supplier in TCA theory. Specific assets involved, and the uncertainty/complexity, and frequency of transactions are the three important elements of inter-firm trade, which decides how buyer-supplier relationships can be effectively coordinated (Buvik, 2001).

Specific assets refers to investments of buyer and/or seller in specific knowledge, routines, machines, tools to serve a specific trade partner. *Uncertainty/complexity* of trade refers to technology or ambiguous product specifications. *Frequency* of trade is the number of annual orders or amount of trade (Buvik, 2002).

Specific investment creates the condition of bilateral dependence, high switching cost, and a need for coordination between firms. Specific investment will lead to a shift from conventional transactions to hybrid and hierarchical governance. In this case, inter-firm coordination like vertical integration, joint action, cooperation, and extensive contracting is especially important when firms are in a strong bilateral dependence (Buvik, 2002).

Vertical coordination is the integration of the resources and information flows between the supplier and the buying firm (Buvik, 2002). According to Buvik and Gronhaug (2000), inter-firm coordination is a method by which the enterprise extends its portfolio of business units. Inter-firm coordination is also the integration of inter-firm flows of activities, information and resources in order to coordinate the value chain to the end customer.

3.0 Methodology

The methodology of this thesis is using case study to explore the local food supply chain. (Leonard-Barton, 1990) states that

“A case study is a history of a past or current phenomenon, drawn from multiple sources of evidence. It can include data from direct observation and systematic interviewing as well as from public and private archives. In fact, any fact relevant to the stream of events describing the phenomenon is a potential datum in a case study, since context is important.”

A case study is a unit of analysis in case research. It is possible to use different cases from the same firm to study different issues, or to research the same issues in a variety of contexts in the same firm. There are several challenges in implementing case study research. Case study tends to collect mainly qualitative data. The collected data is not necessarily generalized to the wider population. Some data is not relevant or useful in the case study research. Therefore, it is not easy to draw a definite conclusion from a limited set of cases. (Voss et al., 2002)

The research is based on the assumption that local food has a good future because of five reasons: (1) retailer and wholesaler support, (2) government support, (3) “perceived” advantages, (4) supply chain sustainability in terms of transportation, purchasing, processing and marketing. The whole procedure started from downstream with Coop Mega which is a retailer in Molde, then going upstream. We also interviewed a representative of the local governor, who deals with local food.

The local food producers were selected by using a snowball sampling procedure. The respondents contact information was gained through Coop Mega Molde and then we selected a sample of producers coming from different categories. This method excluded some local food companies, because they may not sell to the supermarket. One thing to be noted is that one interviewee is not a supplier to Coop Mega Molde. We selected it as the sample because it has some connection with local food activities and other local suppliers in our case. Therefore, it is relevant and constructive to our case study research.

This limitation of snowball sampling also exists in our study. Snowball sample is a non-probability sampling technique. The selection of the sample is not random. It is impossible to determine the possible sampling error. We chose all the sample mainly by geographical convenience and accessibility. This may influence our results. So representativeness of the sample is not guaranteed even attempted (Kotz et al., 1999).

The method of data collection is personal interview. We went to the respondents' home or company office directly with a prepared interview guide. We had three types of interview guide, tailored for retailer, producer, and government. The interview guide of retailer focuses on their perspective, attitude and activity of local food. For producer interview guide, the focus is around the whole supply chain of local food from harvesting and processing until the customer picks it up. Besides, we included some questions about their personal information which may indicate the future development of local food. The interview guide to the government official contains questions about the start, actions for helping local farmers and future development about local food.

A limitation of personal interviews is that many pieces of information may be incorrect or exaggerated, because some respondents see the interview as a market promotion. So there may exist errors in our case study research. The data analysis is using a qualitative method because there are no accurate numbers collected during interviews. Most of the data we collected are descriptions in words.

4.0 Data

4.1 Data description

Coop Mega is a chain of supermarket stores throughout Norway. We selected one Coop store in Molde as the case. We started from this supermarket and got an overview of their purchasing of local food. The local food section started from 2006 and it has tripled during these years while sales of other foods is stable. The local food is becoming more and more important.

After that, we selected six local food suppliers of Coop as our sample. We interviewed two local cheese producers, two local bakery producers, one fish supplier and one syrup producer in total. The interviews were conducted by personal conversation. Questions are mainly four parts: history, operation side, demand side and supply side. The operation side includes their products, characteristics and business size. Demand side involves customers and delivery aspects of their activities.

The local producers produce different types of foods. The local food producers we study in this thesis produce fish and fish products, bakery products (lefse, bread, cake), dairy products and fruit products. All of the six producers do processing and transportation, five of them do packaging. And two producers play the role of retailer as well. Three producers' main raw material is their own like milk, vegetables and fruits. The local fish and fish product manufacturer purchases his fish locally and from a more northerly region. All of the producers purchase some raw materials outside local. Three of them purchase their main raw materials outside like flour, sugar and fish.

Four of them said the reason for starting the business is related to the family situation while the other two said their motivation was to protect local culture and increase income. But the working place of these two producers is in their house. Five of them had tried to find other job before and four of them had been working for other job before. Five of six producers claim their business is profitable. Only one is losing money every year although the turnover increased almost 6 times the last 7 years. Most of the local producers said they only earn very little, just enough to make them survive.

All the local food producers are suppliers of Coop Mega and other supermarkets. All of them sell products to hotels, restaurants, and catering and also directly to customers. Four

of them go to farmer's market and three of them sell products to some shops including own shop, tourist shop and farm shop. The fish producer even sells products abroad.

Every local food producer uses their own car to transport their product locally which is within 20 kilometers. For longer distance, three producers use third party logistics like Bring who is a dominant transportation company in Norway and Tine who is a dairy and milk company that provide cold logistics service. Another two producers share one van. The last one doesn't deliver to far areas unless the buyers pick up by themselves. Two producers deliver goods every day while others transport between once a week and once a month. One producer's inventory strategy is order based and four producers are inventory based while one producer uses a mixed strategy. Except for the fish supplier, the production volume of the other five local suppliers is small. The fish supplier trades around 1000 kg fish every day. The two cheese suppliers each produces around 20000 liters milk per year. The Lefse supplier and syrup supplier both stop production once their freezers are full.

Finally, we interviewed an officer at the Department of Agriculture of the County Governor. This interview covered many aspects like current situation of local farmers in Møre og Romsdal county, government attitude to local farmers and what actions they have taken to help local business

4.2 Case description

4.2.1 Coop Mega

First, we started from procurement as a store. Through interviewing Coop Mega in Molde, we got an overview of their purchasing policy. Coop has a variety of local foods like jam, honey, cheese, fish, cured meat, eggs, lefse, bread, concentrated juice, pineapple sodas, water, carrots and strawberries, almost covering all kinds of categories. Lefse is a traditional dessert in Norway. It is very popular among people. As for sodas, there is a fruit soda water which is only produced locally in Molde.



Smoked salmon is a traditional production craft. The authors and Associate Professor Per Engelseth with our informant at Coop Mega Molde in their section for seafood.

From Coop's point of view, local food is defined as food produced within Møre og Romsdal County. The main reason why Coop sells local food is customer preferences. The demand is increasing in recent years. The mark up of local food is a little bit more than ordinary food. But people like to buy local food, especially some foods that are associated with local culture which people can't buy in other places. Additionally, local food production is popular among customers. It is fresh, good quality, healthy and tastes good.

Coop is a large super market which has 135 million NOK turnover per year. For Coop, it cares about the local food market. It has had a local section since 2006. Now the size is tripled since 2006. Local food sales account for 7- 8% in the total sales volume. This percentage is stable in the market because Coop has tripled all the products. Local fish and cheese are comparatively more important than other local foods. Local cheese is only sold in Coop, you can't buy it in other places except some special shops in Oslo. For fresh salmon and cod, they are all 100% local. Coop meets the fish supplier at the port 6:00 am everyday. What's more, the fish supplier can refill twice every day to suit the Coop's requirements.



The local food section in Coop Mega Molde. The authors with our informant at Coop Mega Molde.

There are two distribution ways from farmers to Coop. Lots of local farmers choose to deliver products by themselves. They come to Coop to ask if they need the foods they have produced. The delivery costs are paid by themselves. Another way is through Coop distribution centre. Farmers transport their products to the Coop centre. Then trucks from Coop deliver products to the shop about once a week. Coop has three ways to purchase local food. One is through PDA(Personal digital assistant) which is a mobile electronic device that functions as a personal information manager. Another is that Coop telephone them to order it. The most common way is that farmers contact the shop directly by phone. Their marketing is personal. The quantity of goods ordered are such that local farmers can have a predictable profit. Because of Coop, these small local suppliers can survive so they are very dependent on Coop.

The regulation of food safety in Norway is very strict that every food supplier has to obey it. Local food suppliers are required to have the barcode and ingredient label on the package of the products. There are no special requirements compared to ordinary food. RFID (Radio-frequency identification) is important between suppliers and customers because of traceability. In addition, Coop also takes the responsibility to check out the quality without document like visual control and smell.

Local farmers usually have long term contract with the shop. Most contracts are signed or renewed in Coop's distribution center. The contract will be for one year. The contract specifies the barcode label in details. What's more, local suppliers are not allowed to supply their products to other Coop's competitors according to the regulations in the contract.

4.2.2 Horsgaard

Horsgaard is a local fish store located in Molde city centre. It is the fish supplier of Coop Mega. All the fresh fish of Coop is ordered from this company. In addition, Horsgaard also plays the role of fish trader. It not only sells fish in its own store, but also sells to hotels, restaurants, schools etc. Sometimes, it even delivers fish abroad.



Local sea food in Horsgaard store in Molde downtown

Horsgaard started in 1932. It is a four generation company. The owner of Horsgaard inherited this fish store from his grandfather because he couldn't find a job at that time. It only has 5 staff in the store: one driver, two salesmen, one main staff and the owner who controls the computer and phone.

Most of the fish Horsgaard sells is local, only a small quantity of fish is from other places. It has four main suppliers. In the morning Horsgaard calls them what they need and gets feedbacks from suppliers in the afternoon. The final quantities are decided by the suppliers owing to the uncertainty of fishing. Suppliers use third party logistics to transport fish.

Every evening at eight and next morning at five, the store receives fish by cars or trucks from Bud and Aukra, near Molde. Each fisherman has processing facilities in the vessel, so Horsgaard only needs to do a few simple processes, except for some seafood which is not local like king crab, shrimps and green sole etc.



Vintage equipment for making fish cake owned by Horsgaard.

If the quantity of supply is not enough, Horsgaard will also look for other fishermen. Taking travel time and price into consideration, fishermen can decide whether to sell it or not. The quota of fishing in Norway is very restricted. Fishermen who have big vessels tend to sell fish to wholesalers of Horsgaard. On the other hand, many old fishermen who only have small boats like to sell fish to Horsgaard directly because they think they can get a better price and good treatment here.

Horsgaard is not only a retailer and fish trader but also the fish supplier of Coop Mega in Molde and Oppdal. Oppdal is a small town outside Møre og Romsdal county. Coop Mega has a good market and better promotion, so Horsgaard cannot compete with it. Therefore, it chooses to collaborate with Coop. It has already cooperated with them for 5 years and 3 years in Molde and Oppdal respectively. For Horsgaard, Coop Mega is the biggest customer. In general, Horsgaard receives around 1000 kg different kinds of fish everyday. 700-800 kg of fish are used for trade. Horsgaard supplies 80% of received fishes to Coop Mega. Every night when Coop is closed, they will order the fish from Horsgaard by fax.

The ordered fish will be delivered to Coop at 8 am the next morning. The whole period is less than 24 hours to ensure freshness and quality.

Horsgaard uses its own truck to transport fish in Molde. Considering reliability and responsibility, Horsgaard uses his father as the driver. For places outside of Molde, they use third party logistics to transport fish. Every evening at nine, Horsgaard drives to the terminal to pick up fish for Coop Mega Oppdal, then they use Bring to transport fish to Oppdal.

Some customers prefer going to Horsgaard because they believe fish here is fresher than at Coop. Compared to the profit, Horsgaard is more focused on freshness and quality. Therefore they don't earn much money. On the contrary, sometimes they have to pay a lot in the operation because of the short quality period of fishes. Last year, it only had a 2 % increase of sales volume. But in order to ensure the quality and taste of fishes, for the moment, Horsgaard can't accept too many customers.



Interview with the owner of Horsgaard, Kjell Rune Kirkeland

4.2.3 Fole Godt

Fole Godt is a handmade bakery which is located in the center of Molde. It is the local bakery supplier of Coop Mega. It was started by Kristin Heggdal in the summer of 2008. She started the business to stay more close to her child. Additionally, she was interested in bakery and found there was no handmade craft bakery in Molde at that time.

The main products of Fole Godt are bread. Besides bakery products, she also sells coffee, chocolates and olive. Handmade craft means doing almost everything by hand except dough mixing, in contrast to industry bakery. What's more, Fole Godt does not use any artificial ingredients. They prefer to use ordinary whole milk and eggs rather than milk or egg powder. The bread they make is fresh and healthy which can only store for 2-3 days.



Handmade bread in Fole Godt store in Molde downtown

Fole Godt has lost money since its foundation 7 years ago, but the business has expanded from 1.4 million to 7.8 million gross annual turnover. It went bankrupt in 2011. The main reason was that they had paid a lot for night salaries. Shop assistants had to make bread at night because the kitchen was not enough. Now they pay attention to lean production and work mostly at daytime. The new store just opened. Everything is going the right way now. There are 17 employees in the shop and some of them do part-time work.

Coop Mega was the first customer of Fole Godt from day one because it wanted a large

part of the local market. Considering the need for a steady income and customers who don't have time to come downtown, Fole Godt chooses to cooperate with Coop and spends most of its time to supply it. Coop is the main customer which accounts for 42-45% of total sales volume. What's more, they both have a good personal connection.

Besides Coop, they also supply a few products to Bunnpris in Molde city center. In addition, their operation is flexible. Everyday, canteens and coffee shops call for the bakery. Some business companies also order bread for meetings and courses. Fole Godt drives out to six of the biggest companies in the Molde near area every morning.

Fole Godt delivers bakery products by its own van. It drives directly to the customers at 7-10 in the morning every day. One hotel in Molde is the first customer which wants to receive deliveries before 7 am. Coop has a list of different products every day, they want delivery before 8.30 am. However, one customer in Ålesund has its own transportation. They drive to Molde to pick up bread every Friday.

Fole Godt has 9 suppliers (flour, coffee, chocolate, tea, olive...) and keep the same suppliers every year except chocolate which has changed a little bit. Heggdal has a good relationship with all her suppliers, they always have private conversations. The olive is imported from Spain. The supplier of coffee is in Oslo. They travel all around the world to pick up the coffee beans and burn it the way they want. So these products are good tasting and high quality. All the flour they buy comes from a huge company called Idun Industri. It provides 1.6 tons of flour for Fole Godt once a week by their truck. Now Fole Godt is thinking about using eco-friendly flour because the price of ordinary flour rises continuously.

4.2.4 Heimebakst bakery

Heimebakst bakery was founded in 2002 when it got a grant from the government. The company produces the traditional soft, Norwegian dessert called lefse. It is a very popular pastry among local people especially in the holidays. Heimebakst mainly supplies products to Coop Mega in Molde.

Lefse is made with potatoes, flour, butter, and milk or cream. It is baked on a griddle. It generally resembles a pancake or flatbread and has butter, sugar and cream inside. Heimebakst bakery produces 6 different types of lefse which include Solemdalslefser, Buggelefse, Snipp and Tykklefse. Some of them are named according to the origin of the recipe. Potatolefse is a new type this year.



Handmade lefse production with traditional recipes

Lefse cannot be stored for a long time in room temperature so it needs to be frozen. The sales of lefse are seasonal. It has a sales peak in the period of Christmas. Because Lefse is sold very well, the profit of the company is considerable. The production of lefse is inventory push. They will stop production when the freezer is full. Now there are four people working there including part-time job.

Main customers of Heimebakst bakery are Coop Mega Molde and some other shops in Trondheim. People can also come to order fresh products and cakes for meeting and party.

Heimebakst delivers products by their own truck. The truck has freezer inside. They drive to Coop Molde once a week and twice a week to Trondheim.



Heimebakst's own transportation van

All the raw materials like butter, sugar and cream are ordinary food. They don't have local suppliers. The production craft is simple, but the recipes of lefse are old and local. It was learnt from their ancestors. The main reason why they operate the company is to increase income and help local people. Heimebakst was established with several owners. Because two owners are retired, the future development of the company is by young people.

4.2.5 Derinngarden

Derinngarden is a dairy farm that started in 2003. It is one of local cheese suppliers of Coop Mega. They make cheese and other dairy products from own milk. They run the business because they want to stay in the farm as much as possible.

Self produced cheese is more traditional compared to industry products. It adds more culture and tastes rich. Derinngarden has 9 kinds of self produced cheese and other dairy products like yogurts. They haven't made new products in the past few years. Cheese can be classified as soft cheese, half hard cheese and hard cheese. The production time is 3-4 weeks, 8-10 weeks and more than half a year respectively. Soft cheese can keep for 10 weeks while hard cheese can keep for 2 years. But if hard cheese is cut, the durability will shorten. Besides cheese and yoghurts, Derinngarden also sell some local jam and syrup

from other farmers. Local famers help each other to sell and transport products.



Local dairy products in Derinngarden farm shop

The organic milk is produced in their own farm. The total milk production of this farm is 20000 liters per year. The production is all year around. Besides cheese making, the farm also runs another business hosting local social events, and people have meetings here. They are served a lunch based on cheese. Derinngarden shows them around the farm and tells about cheese making. In summer, many tourists visit the farm in the shop, where they taste products, like a simple coffee shop, so they are busy at that time. The hosts of the farm both work outside. Besides the owners, the farm only has one part- time hired worker.



Dining and meeting area at the farm

In the last couple of years, Derinngarden went to many farmers' markets and got orders there. However, last year they only attended two big markets in Ålesund and Oslo because they didn't have enough cheese. Now it's easy to sell because of a reputation in the market. Local cheese usually has quite good price, but it is also a lot of work. It's handmade and takes time. The sales volume of dairy products is almost stable. With selling more and more yoghurt, they made a little bit money because they don't use so much milk compared to cheese making.

Derinngarden has quite a few customers. It is a shareholder of Tine which is the largest Norwegian dairy company owned by farmers. Tine's distribution system is covering all of Norway. It helps local farms to pick up goods and send directly to their customers. Derinngarden sells cheese to restaurants and hotels at tourist attractions in Møre og Romsdal County, in Kristiansund and in some special stores in Oslo and Bergen, through Tine's transportation system. In the first year, they travelled around as salesmen, called some restaurants and asked about if they wanted to taste it. The biggest customer last year is a hotel in Geiranger near Ålesund in Southern Møre og Romsdal county. The yoghurt was delivered there every two weeks by call or email.

Derinngarden also sells cheese to the supermarkets like Coop Mega. Coop is the fourth biggest customer. It orders products once a month by message. For Coop Mega in Molde, Derinngarden uses its van to transport in person because they are quite often have something to do in Molde. However, for Coop MEGA in Kristiansund, they use Tine system because they don't go there often.

4.2.6 Halås farm shop

Halås farm shop is located in Eide, between Molde and Kristiansund. The owner runs a small farm with sheep, chicken, herbs and berries. The owner started the business because her child was born at that time, and she didn't want to leave the farm so she had to create her own job.

Twenty years ago, the land of the farm was poor. It was a swamp. In the beginning, people just came to Halås for brief visits. Now, it can offer space for small functions, conferences and courses. It has a dining area and accommodation. Therefore more and more groups come here to hold meetings. Some old people also like to have parties here because they

don't know how to cook. Halås provides traditional buffets and fish for these activities.

Halås farm shop has many kinds of products made or processed from the farm. Some are seasonal. Halås has a variety of jam, juices, syrups and handmade soap. Additionally, it also sells spices, tea, herbs and eggs in the shop. These goods are different from ordinary products. The production craft is old and traditional. Some recipes are ancestral. You can also find some products from other local farmers. Local farmers share products with each other.

Halås farm shop only sells products locally because the transportation cost is high and glass bottles are heavy. The farm is not profitable. Its turnover is small. But the farmer likes to run the business. Its main customer is Coop Mega and a few local shops around here. Glass bottles and sugar are the two biggest supplies of Halås. The farm receives them once a year.

Halås delivers products to its customers once a month by its own truck. On the way back, it also loads some products from other farmers. Halås also sells these products in its own farm shop. In this way, it helps local farmers build network to transport together. It can reduce the empty transportation costs and share products among local farmers.

4.2.7 Brubekken Gardsmeieri

Stein Brubæk is the owner of Brubekken Gardsmeieri. He has two identities. One is as the owner of a local dairy farm which mainly produces the Norwegian traditional brown cheese while another is the leader of local food activities among farmers. The land and house are inherited from his parents. He said that he still sleeps in the same bed as when he was a child. The production of brown cheese, yogurt, white cheese and cream are very small. The farm has 8 cows and 30 goats. Now the raw milk production is 2 tons per cow and 0.5 ton per goat. The annual profit of the whole farm is around 1.3 million. One idea of his is to try to feed animals more grass and produce more milk to make the income increase to 2.2 million NOK. It is hard to reach that goal. His animals are fed natural grass while ordinary food production uses soya to make animals fat quickly. Also, the production method is very traditional that uses cast iron pot to evaporate the milk during production of Norwegian traditional brown cheese. There is one permanent employer with two temporary exchange student workers from a university in Austria which has specialized

agricultural curriculum. But they prefer to hire permanent workers because of the need for stability.



Traditional brown cheese production, using a cast iron pot to evaporate the milk.



Fermentation of the traditional Norwegian brown cheese

Brubekken is not the supplier of Coop Mega in Molde. The marketing of Brubekken is to sell to supermarket, hotel, farm shop, and farmers' market. It is very complex. In total, they try to sell their products in as many ways as possible. The farmers' market in Trondheim is one of the biggest in Norway which opens 2 times a month. The distant place is Oslo using

Tine transportation system. The dairy company Tine provides cold chain transportation service to small producers. The price is relatively low to transport. For short distance, they deliver by using their own van with freezers. The owner of Brubekken has a great relationship with Heimbakst's owner. So they cooperate to use the same van to transport even to Trondheim. The transportation method is very flexible. They use third party transportation like Tine for long distance while using own van to transport short distance.

Brubæk told us the history of local food. Before Norway found oil in the ocean, the whole country was very poor and people used to farm by themselves. There were a lot of people working at farm and making food. The methods and recipes were inherited by their family and it contained both tradition and culture. But after the oil was found, the lifestyle of Norwegians changed. People don't want to work with farm because the farm work is harder and the income is lower than other job. They prefer to work in office. Many people leave their home, land and move to the city.

Also, the government encourages the development of food industry. For example, the big dairy product company Tine which is owned by farmers can collect raw milk from the whole nation. Being owner means the farms have to sell their raw milk to Tine with a cheap price. The price is set between Tine and government each year to make sure consumers afford it and farmers do not lose money. Farmers have no quota to sell milk to anybody if they are not the member of Tine.

Brubekken is excluded from of Tine's quota system, so he has to process dairy products himself. This way he captures the value added, and makes more money than if he sold unprocessed milk to Tine, at their cheap price. Brubekken uses the traditional method to make brown cheese. When he stated, only a few old women knew how to make brown cheese, because the government tried to develop industry food and ignored the local traditional food. Now, Brubekken survives in the monopoly market because of differentiation.

The ideal of government was changed in 2000 when the new government started to pay attention to the tradition, culture, history and food sustainability. They found the agriculture production of the whole country was very low. So now the government invests 100 million NOK in each year to local food projects. There are a lot of projects that aim to

attract more people back to farming, reduce cost of farm products, let more people buy local food, etc. Besides, Tine believes competitors can help expand the dairy product market while they don't let anyone threaten their business.

The project that he is doing is a transportation project. The aim is to shorten down the link between customer and farmer. That will reduce the cost of intermediate and transportation cost as well as increase the competition of local food. They try to use Tine transportation cold chain system to transport dairy products throughout the whole country, and build a cooperative distribution centre for all kinds of local food. Farmers only need to drive to the centre. The distribution centre is responsible for collecting , packaging and transportation by third-party logistics.

4.2.8 Møre og Romsdal County Governor

The Norway government started to think about helping local farmers and producers around 2000 because they are small and cannot compete with big companies. Besides, the local farmers always carry on the cultural, history and tradition of Norway. Kirsti Indreeide is a senior officer for the Department of Agriculture of the County Governor. She said the goal of Møre og Romsdal County Governor is to make the place, society, and land more ecologically and culturally sustainable. Besides, they try to make Møre og Romsdal more attractive for tourists.

There are two organizations that take different responsibility for local food development. One is called County Governor and is the provincial arm of the National Government. For Møre og Romsdal, there are 13 sub-offices located in each city that covers almost all the district while the provincial main office is in Molde. They are helping entrepreneurs and producers through some indirect way like educating, give information and marketing. They told entrepreneurs and producers some basic knowledge about local food. The quality could be the main advantage for local food and that means the price is higher than ordinary food. The production method and food taste should be acceptable for both modern youth and elders. The government tries to achieve this through training and counseling. Besides, the government supports several marketing activities to help local producers sell products though an establish food festival and send local producers to an international food festival. The big food festival of Møre og Romsdal is Ålesund Food Festival which is held every August. International Green Week in Germany take part for the 80th time in 2015. The

County Governor will select a local producer to go there each year. Finally, the governor gives advice to restaurants, hotels and institutions to use local organic materials. The county governor has responsibility to let children and students understand the importance of local culture, tradition and history. To make them have interest to pass on the Norwegian culture. So the governor hold seminars and classes at schools.

The other one is called Innovation Norway. For the Norwegian Government, it is the most important instrument for innovation and development of Norwegian enterprises and industry. Innovation Norway only have office in Oslo. They provide financial help to local producers and farmers. Agriculture is the second largest export sector in Norway, after petroleum. Innovation Norway has a special project to help local fish farmers boost this sector.

The “local” have several definitions based on different perspectives. For Innovation Norway, the explanation of distance is that within 10 kilometers is local. For the County Governor, they think the value creation process inside the county is local. The county is several 100 kilometers across. Several local producers sell their products to other regions even abroad. The range of products that government will help is very large and includes everything produced from land and sea or use very traditional production method. It contains dairy, milk product, meat, fruit, vegetables, bakery, smoked salmon and fish, both .

Norway is a developed country, nobody needs to be concerned about food shortage. So the problem is nobody wants to engage in farming because of low income with labor intensive production. So production of local food has to show its advantage to attract more people, especially young people. The income and social status are more and more important for people choosing job. The County Governor has to have good cooperation with Innovation Norway. It can give more help both in terms of knowledge and finance to people who want to start. Until now, they have been doing a good job, the sale of ordinary food increased 4% while local food sales raised 8%. For the future, they want to continue increasing the quality by giving more opportunity to cooperation between producers. For example, it lets producers try other producer’s products to get some improvement for their own product. Also, to attract more people to work for local food producers, that is another objective for the future. This will require more frequent cooperation between the County Governor and Innovation Norway.

Table 1. A summary of the data from the six local food producers in the study.

	Horsgaard	Fole Godt	Heimebakst	Derinngarden	Halås	Brubekken
Products	Fresh fish	Handmade bakery	Lefse Freezed product	Cheese dairy product yogurt	Jam, juices, syrups and soup	Brown cheese
Transport to customer	Own car, Bring system	Own car near Molde, Customer's car to Ålesund	Own truck with freezer inside	Own car, Tine system	Own car or other producer's car	Own car, Joint transport with Heimbakst, Tine system
To Coop	Own car	Own car	Own truck with freezer inside	Own car	Own car	Same car with lefse
Frequency	Everyday	Every day (products is different in each day)	Once a week Trondheim twice	Once a month	Once a month	Twice a month
Advantage	Fresh	Natural ingredients	Local special need in holiday	Organic and tradition	Handmade and traditional	Norwegian tradition
Other business	Fish retailer	Coffee shop	Cake but not many.	Conference, tourist camping	Small party, meetings	Local food projects
Reason	Business own by his family	Close to child	Increase income	Stay in farm	Stay with children	Protect traditional culture
Employee	Four	17 workers some of them is part-time	Four full time	Family based with one part-time worker	One	One worker and two student
Supplier	Local fisherman and some from north	Industry food but trend to local supplier with better quality	Food Industry	Own caw	Glass from abroad. Once a year.	Own caw and goats
Inventory situation	Order based	Order based, Short period so no inventory.	Inventory based, Production until freezer full	Produced and inventoried when they have milk.	Inventory based	Produced and inventoried when they have milk.

5.0 Analysis

The objective of this thesis is to describe the whole supply chain of local food from manufacture to consumer. The first actor is the local producer, and the local food products include several types like dairy products, fish and seafood, bakery products, fruit and vegetable products. The local food have the advantage of being produced locally, handmade, fresh, traditional recipe, cultural heritage, but high price which are attractive for producers. The local foods have to have some differentiation compared to ordinary food. Almost all local products in this study are handmade. Some raw materials are local and self produced. Some don't use artificial ingredients and have a healthy production craft. Others add culture and traditional recipe. Some local food have a long history which represents a unique local culture. Therefore, local food is not only a geographical concept but also includes socio-cultural factors like local culture, society and habits.

The food type determines their raw material purchasing type. Some raw materials are only produced outside the region because lack of local suppliers. For instance, the bakery producer only purchases sugar and flour from a industrial food supplier although she knew there are some local suppliers who can supply, but they are expensive. For the local fish seller, if he is only purchases locally then he will loose some customers because people want to eat more types of sea food than can be caught locally.

The market for local food is still expanding and more people support local food than before. The marketing channel is very complicated and several market strategies are being combined to increase sales volume and turnover. But they are not developing as a blind. They will keep the development more sustainable which means keep the current market share and try to expand. They know what the customers really care about, the core advantage and disadvantage for themselves. For example, the fish product producer refuse several orders because they cannot accept too many customers in order to ensure the good quality and taste. Most of the local food producers have a good relationship with the customers, not only a business relationship. It contributes to mutual confidence, maintain and increase trade volume, information share etc.

The transportation method is mainly self transport. That gives the local food producer flexibility, fast delivery and high frequency. The studies from the USA mentioned that the

transportation cost of local food producers is very high and the producer urgently needs a high efficiency transport method. But in this case, some producers said they like to transport by themselves because they can do a lot of things during transportation like shopping, purchasing, meeting, delivery etc. Self delivery provides more flexibility for the farmers' life. For more distant destinations, they use joint distribution, or third-party logistics by wholesaler.

The supply chain of local food is shorter than for the inventory food system. It has the advantage of fast reaction, short lead time, direct relationship etc. The inventory and production strategy they used is based on the product shelf life. Normally, the production will not stop unless the freezer is full. Also the shelf life affect the transportation strategy where more freshness will require more frequency and small volume on each time.

For most of local producers, working for local food is not best choice for them because of the low income and heavy workload. But they have no choice because of some reason. The reason can be divided into two parts, internal and external. The internal reason is the desire to take care of own children, land and hobby, while the external reason is that it is hard to find a job and some are compelled by traditional culture. The internal reason is related to gender, since women take more care for family and children. And the main purpose is to have sufficient earnings instead of expanding, although some want to expand. Some also provide some value-creation service in addition to attract people like accommodation, meetings, tourism, restaurant etc. This kind of business can boost its main business and help them survive in a brutal competitive environment. The competition is from both industrial food companies and similar local food producers. The sentence of "A lot of local producers disappear each year" was said by almost all of the producers.

But there are a lot limitations like small company size, fierce competition, deficient raw material supply, high transportation cost to distant places, etc. Local producers have no ability to break the limitation, they have to get help from others. The government can provide help in terms of finance, technology, resources etc. There are several strategies to help local producers develop. They have started to build a local food hub to establish an efficient logistics system. Several marketing methods are applied to develop the whole market and offer many kinds of help to attract more people in this business. The government has held several local food festivals and sends people to international food

conventions annually.

For Coop, they like to put local food product in their market. They said the profit of local food is higher and the relationship is closer than business. Also it gives more connection to the local society and attracts more customers and travelers. The director of Coop Mega in Molde said, they provide Coop logistics service to local producers. And they know local producers deliver products to Coop by own car. So the order from Coop will make the producer profitable.

5.1 Logistics

Local food supply chain is a short supply chain. It consists of three main entities in our case: customers (Coop Mega), local producers and the producer's suppliers. Between our interviewed six local food producers, Brubekken is not a supplier of Coop Mega in Molde.

Supply chain management is concerned with the relationship between a company and its customers and suppliers (Hill and Scudder, 2002). Better buyer-supplier relationships can lead to good cooperation in an innovation process. In addition, close buyer-supplier relationships might also result in mutual operation target, which can be beneficial for both parties. In our case, the fish supplier Horsgaard and bakery Fole Godt both have a good partnership with the supermarket. They supply Coop Mega every day and have a good personal contact with each other.

Logistics is a part of supply chain management. For logistics, almost all the process is done by local producers. Because their operation is small sized with not many full-time workers and the production volume is quite small. They have no need for outsourcing. In general small local producers are responsible for simple packaging, warehousing, and transportation. The transport modes include self-managed, joint, third-party and so on. In our case, all six suppliers use self-managed transportation to short distance near Molde. For distant distance, they use joint transportation and third-party logistics.

With regard to inventory, it is also a big part of managing purchasing and supplies. The inventory strategy have two different ways. One way is called order-based that is based on forecast while another is inventory-based. In our case, one fish supplier and one bread supplier are order-based inventory strategy. They supply Coop Mega every day. Their

frequency of trade is high. The lense supplier and the syrup supplier are inventory-based strategy. Their products can be stored. For lense, they will stop production when the freezer is full. That is also true for two cheese producers, at least regarding hard cheeses. According to the interview on them, soft cheese can keep for 10 weeks while hard cheese can keep for 2 years.

5.2 Local Foods Purchasing

The competitive advantage of local business is differentiation in the market. It is the keystone for small local business to stay competitive and survive in the industrial market competition. Differentiation can meet special customer demands. This strategy aims at creating brand preferences and customer loyalty, thereby reducing the importance of price. The main reason why Coop sells local food is customers preferences. The demand is increasing in recent years. Local food production is popular among customers. Local foods are perceived fresh, good quality, healthy and good taste. In addition, the demand on local people to support local economy and protect local culture can establish customer loyalty for local foods.

For Coop Mega, local products are strategic items. There are not many alternative suppliers in the market and local products are usually sourced from one or two specific suppliers. The mark up of local food is a little bit more than ordinary food according to the interview on Coop. In general, local foods are value added products and associated with local culture. Therefore, Coop takes local food as a "bait" product to attract more customers. Nobody goes there only to buy local foods. If local foods make more people shop there, they will sell more of everything.

Buyers and sellers position in our case has a balance of power. The interdependence between Coop Mega and its local suppliers is relatively high. Coop pays attention to local food market because of the increasing customer demand. It has had a local section since 2006. For small local producers, they are also dependent on Coop for survival. Supermarket is the preferred first choice for accessing local food. Therefore, most small local producers want to find a place for their products. There exists a bilateral dependency in the buyer-supplier relationships.

Because of this bilateral dependence in the buyer-supplier relationships, the purchasing strategy of Coop is to communicate closely with its suppliers, focus on long-term value and fully think about vertical integration. The contract local producers signed with Coop is valid for one year and they have to renew it each year. Making long term contracts is an effective way to strengthen inter-firm cooperation. For small local suppliers, it can reduce the possibility of opportunism, uncertainty and investment risk. Agreements reflect the integration and interactions of buying firm and supplier firm, and the exchange of information. It is especially important when firms are in a strong bilateral dependence (Buvik, 2002).

5.3 Transaction Costs of Local Suppliers

Coop states that local suppliers are not allowed to supply their products to Coop's competitors according to the regulations in the agreement. Some local suppliers make specific investments to serve a specific trade partner, which is Coop Mega. Horsgaard supplies 80% of received fish to Coop. Considering the need for a steady income, Fole Godt chooses to cooperate with Coop and spends most of its time to supply it. Coop is the main customer which accounts for 42-45% of total sales volume.

In this situation, it will lead to bilateral dependence and high switching costs for small local producers. Therefore, it needs bilateral governance and coordination between firms. Vertical coordination is the integration of the resources and information flows between the supplier and the buying firm (Buvik, 2002). Improved communication and exchange of information between actors can create transparency in the supply chain and prevent opportunistic behavior. Local food suppliers are required to have the barcode and ingredient label on the package to trace the origin of products. Labels are compulsory for local food because of traceability and food safety. They integrate the vertical information flow since all labels together provide information on each stage a product has passed in the supply chain (Wognum et al., 2011). Coop uses PDA (Personal digital assistant) and personal contact like email or telephone to purchase local foods. Electronic devices like RFID (Radio-frequency identification) is important between suppliers and customers. It can also facilitate tracing the information exchange on all stages.

Our case study documents joint actions in the supply chain. Among local producers, Brubekken and Heimbakst share the same van to transport jointly. For Derinngarden and

Halås, they share products in their farm shop. On the way of transportation back, Halås also loads some products from other farmers. It also sells these products in its own farm shop. This kind of joint transportation and marketint is an example of horizontal integration among local suppliers.

The owner of Brubekken is doing a transportation project. He wants to integrate small local farmers in and near Møre og Romsdal county to establish a hub which can transport products throughout Norway by Tine transportation system. Coop also has a distribution centre. Farmers transport their products to the Coop centre, and then trucks deliver products from the Coop centre to the supermarket about once a week. But most local farmers choose to deliver products by themselves. This kind of transportation is an example of vertical coordination in the supply chain.

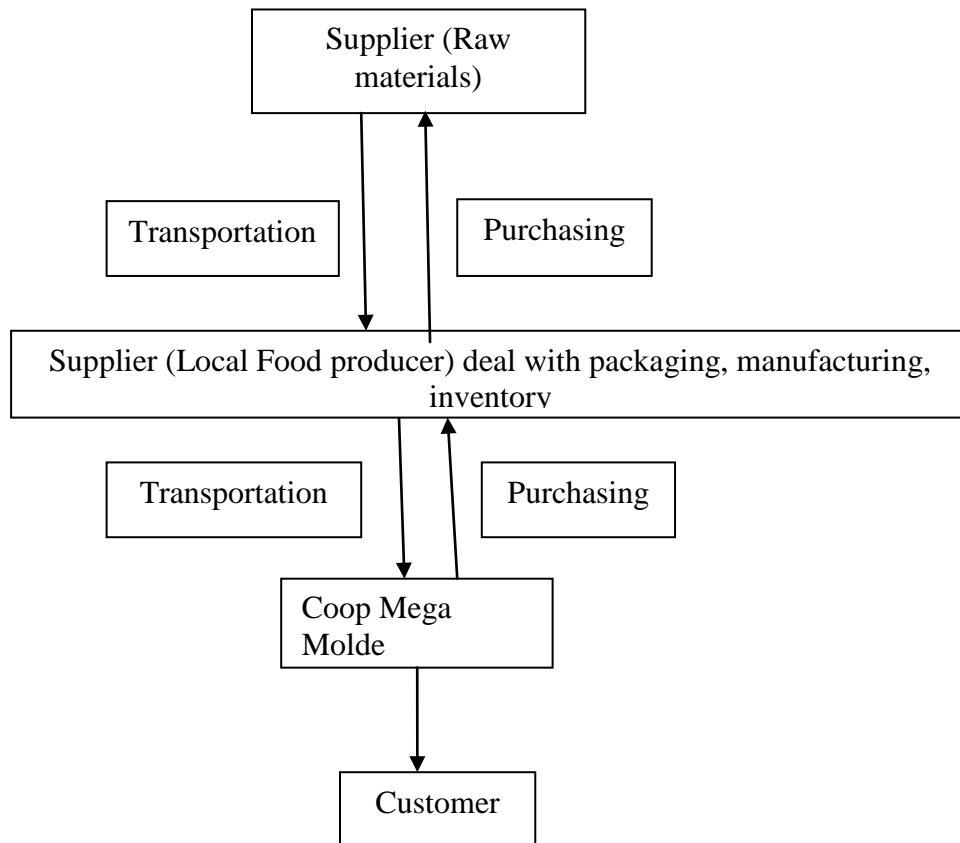


Figure 2: local food supply chain in our case

6.0 Conclusion

The local food is not illusory that it really has differentiation compared to industry food, beyond being produced locally. For Norwegian citizens, they are willing to afford local food with high price since the quality is better, although the food is not necessarily certified as organic. The local food supply chain can be seen as a simplified normal supply chain. It involves purchasing, producing, processing, packaging, storage, distribution, marketing, and so on. Most steps can be done by the producer because the volume and distribution range are quite small. For the future, they need to increase volume without compromising on quality, provide more service to customers, develop the market further and create new marketing channels, distribute to a larger area, build an efficient distribution system etc. This can be achieved through developing Community Support Agriculture, traceability, a food hub, integrated food system, food quality standard, place in tourist shop etc.

Local food production is small volume that cannot compete with industrial food in the market. The reasons why they survive is local society support and differentiation. This competitive advantage meets the special customer demand and creates brand loyalty associated with traditional culture for local business. But still, a lot of local food producers withdraw from the market because of financial reason.

For Coop, local foods are strategic items. The dependence is high in buyer-supplier relationship. Coop Mega's dependence is rather due to the low volume of local food production and low number of producers, so they have to buy from the few producers that exist. Coop Mega does not have high switching costs, but cannot switch because there are no alternatives, because if you start to buy from other districts, it is no longer local.

The higher degree of integration, the lower costs in trade. The smaller transaction cost means the closer connection and the higher degree of dependence. On the one hand, local suppliers can develop customer relationship management and make long term contracts with close communication. On the other hand, with the government support, local foods producers can search more suppliers for substitutes of raw materials.

Horizontal integration has already appeared in local food supply chain. Several producers tied together to reduce cost. They share information, transportation and products together. Vertical integration between firms is very need to strengthen. First, close communication and exchange of information between actors is important in the supply chain intergration. Electronic information technology like RFID (Radio-frequency identification) and PDA(Personal digital assistant) should be widely used between suppliers and customers. It can facilitate the integration of the vertical flow of information. In addition, buying firm and supplier firm should jointly develop a transportation system to reduce costs and maximize value added of local foods for end customers. For the Coop distribution centre, it should fully think about the availability, convenience and location for local producers. In summary, inter-firm coordination is the keystone of local business development.

For future research, a quantitative method could be employed to evaluate local food logistics.

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