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**Global Value Chains (GVC) and Social Learning.
Developing Producer Capabilities in Smallholder
Farmers. The case of San Francisco
Produce/Peninsula Organics (SFP/PO)**

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**PhD in Science and Technology Studies
The University of Edinburgh
2018**

Declaration of Originality of Submitted Work

In conformance to the regulations of the University of Edinburgh, I hereby declare that:

1. I am the sole author of this thesis;
2. This thesis is entirely my own work;
3. This thesis has not been submitted in part or whole for any other degree or professional qualification;

Abel Osvaldo Villa Rodríguez

October 2018

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Abstract

The thesis examines how resource-poor smallholder farmers in Mexico are integrated into a Global Value Chain. Most Global Value Chains depend on production located in developing countries. In agriculture, Global Value Chain tend to concentrate production in large enterprises and exclude smallholder farmers. The logic of Global Value Chains is to reduce the cost of production by allocating low value activities, such as production of commodities to developing countries to take advantage of cheap labour cost. High value activities such as branding, marketing and product development remain in high income countries. The thesis consists of the in-depth case study of San Francisco Produce/Peninsula Organics (SFP/PO) Global Value Chain. It is located throughout Southern Baja Peninsula in Mexico and San Francisco California, U.S.A. It sells organic certified produce to the American market, particularly California and east coast. SFP/PO was founded by a social entrepreneur and has been functioning for over 30 years. This Global Value Chain has an explicit social purpose. It focuses on integrating smallholder farmers into agricultural production. This value chain requires farmers to adopt organic production.

The methods consisted of semi-structured interviews. In total, 50 interviews were conducted in Mexico to farmers that belong to the value chain in 9 co-operatives and 3 single farmers. The interviews focused on how farmers learned organic production to meet quality requirements of global buyers. The analysis uses three perspectives to explain the integration of smallholder farmers into SFP/PO and the development of organic production capabilities. First Global Value Chains are used to describe the network, connections and

production activities smallholder farmers and global buyer carry out. The study sheds light on how the value chain achieves its social aims by using global markets and providing external inputs to improve farmers' livelihoods. Second, using Technological Capabilities the study explains the skills farmers need to develop to participate in the value chain. Third, a Communities of Practice perspective is used to explain how social learning is involved in developing production capabilities. The research explains how farmers collectively define competence and how they display three different levels of participation in the value chain, periphery, medium and full participation. And fourth, using the theory of Knowing in Action, the research explores co-learning between novice and expert farmers and the interactions among farmers that results in co-innovation to develop new technical solutions and crop varieties.

The thesis presents a case of a value chain which is motivated by social purpose to improve livelihoods of smallholder farmers. The study demonstrates that there is a change of ethos, where global value chain integrates farmers into agricultural production. These data highlight the importance of social structures which allow farmer-to-farmer connections which enhance novice farmer skills enabling interactions where there is respect, and negotiation of knowledge. These interactions take indigenous farmers' knowledge into account in ways that can be acknowledged and harnessed in the form of practices and techniques to produce globally marketable products.

Lay Summary

The research tells a story of a group smallholder farmers with limited financial and technical resources. These farmers are now part of larger group of farmers which together grow organic produce for export markets. The group of smallholder farmers live in the north of Mexico, in remote and often marginalised areas. Thirty years ago the farmers only grew conventional grains such as corn, sorghum and wheat. Farmers' agriculture was mainly subsistence, which means they consumed their own production, leaving few possibilities to sell their produce in local markets.

Agriculture is a key employer and, in many countries, one of the most important economic activities for development. In countries such as Mexico, agriculture for export is an attractive activity because of cheap labour cost. In this context, farmers are hired to grow produce for taking advantage of production costs. Particularly, a small number of big farmers concentrate production and exclude smallholder farmers. Additionally, growing produce is often considered a low value activity whereas product development is high value, which mainly remain in high income countries such as The United States or United Kingdom. This group of smallholder farmers was founded by an American entrepreneur and has been functioning for over 30 years. This group of smallholder farmers have a social purpose. They focus on adopting organic production and inviting other smallholder farmers who live under similar conditions. For this thesis, the smallholder farmers of San Francisco Produce/Peninsula Organics (SFP/PO) participated. These farmers agreed upon interviews. These smallholder farmers are located throughout Southern Baja Peninsula in Mexico and San Francisco California, U.S.A. They sell

organic certified produce to the American market, particularly California and east coast.

The purpose of this research project is to provide an understanding about the competitive capabilities in the agricultural sector; how this process takes place, the actors involved and therefore the outcomes. The research explores how farmers learn together, meaning the interactions that occur among experienced and novice farmers result in the development of new technical solutions and crop varieties. As part of the project, is to offer a diagnosis as to what the sector needs in terms of innovation and competitiveness and what other alternatives to enhance the performance of smallholder farmers in the context international markets. The interviews covered topics on how farmers learned organic production to meet quality requirements of international markets. First, the study shows that this smallholder farmers achieve their social aims by using global markets and providing external inputs to improve their livelihoods. Second, the study shows the production skills farmers need to develop to participate in the group. Third, the study explains how social elements shape farmers' learning involved in developing their skills for producing organic crops. For example, this research explains how farmers together define what makes a good organic farmer and how farmers should proof how good they are at growing organic crops.

In summary, the thesis presents a group of smallholder farmers who are motivated by social purpose to improve their livelihoods. The study demonstrates that there is a change in agriculture for export which allows the integration of smallholder farmers into agricultural production for international markets. Data highlight the importance of social connections among farmers enabling interactions where there is respect and negotiation of

farmers' experience to enhance the development of novice farmers' skills. These Data provides the Mexican government an understanding as to what it takes for smallholder farmers in agriculture to modernize and become competitive in national and international levels. Smallholder farmers' experience in the field and position in their firms are greatly appreciated. These interactions takes smallholder farmers' experience into account in ways that can be used to explore new techniques to produce products for global markets.

Abbreviations

GVC- Global Value Chains

VC- Value Chains

GPN- Global Production Networks

GCC- Global Commodity Chains

TC- Technological Capabilities

CoP-Communities of Practice

KA- Knowing in Action

EK-Experiential Knowledge

US-United States

SFP/PO- San Francisco Produce/Peninsula Organics

GDP- Gross Domestic Product

PD- Producer Driven

BD- Buyer Driven

TPC- Third Party Certification

GB- Global Buyer

CSR- Corporate Social Responsibility

UK- United Kingdom

LDC- Less Developed Country

NGO- Non Government Organisation

CS- Case Study

REU- Rural Economic Unit

BC- Baja California

BCS- Baja California Sur

SON- Sonora

SIN- Sinaloa

OMRI- Organic Materials Review Institute

GAP- Good Agricultural Practices

GMP- Good Manufacturing Practices

MMA- Mexican Ministry of Agriculture

RRCP- Risk Reduction Contamination Programme

C-TPAT- Customer-Trade Partnership Against Terrorism

USDA NOP- United States Department of Agriculture-National Organic Program

CEO-Chief Executive Officer

CFO-Chief Financial Officer

COO-Chief Operations Officer

OC- Organic Certification

FA- Framework Approach

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Chapter 1: Introduction

1.1 Motivations

The motivations of this thesis are based on my experience as agribusiness practitioner. Although my PhD study was funded by CONACYT, the study is a fully independent project using data I collected, in which I had totally control and full decision for its collection. My analysis is therefore independent of any interests of stakeholders other than my own. It is important to make clear that I was a sponsored student with a PhD scholarship by Mexican Council for Science and Technology (CONACYT). To gain this scholarship my research project and the PhD call of CONACYT were both in line.

It is important too to make clear, as part of the National Governments' strategies, I have been granted with a scholarship to conduct research in this topic. My research is within the scope of The Government's needs to understand what it takes for agriculture to modernize and become competitive in national and international levels. Therefore, the expertise of smallholder farmers in the field and their position in their firms are greatly appreciated and an important component in conducting successfully this research project. However, I was not an employee of CONACYT. CONACYT gave me all freedom to conduct the research according to my criteria.

My research interest and topic focus on Producers Capability development in the agricultural sector. Agriculture is a key employers and, in many countries, one of the most important economic activities for development. There appears

to be a need for more research in regards to its competitiveness and innovation in the context of countries such as Mexico.

As agribusiness practitioner, I majored in International Business, an undergraduate degree at Tecnológico Universitario de Baja California, a private University in Southern Baja Peninsula, Mexico. I developed skills in promoting and selling produce abroad, especially in international markets. When I graduated I was hired to manage the logistics and commercial relationships of a start-up company called AgroBaja¹, a small farming operation in southern Baja Peninsula, Mexico, that produces and exports organic produce.

This position immersed me into a daily interaction with international brokers and smallholder farmers. I became aware of the embedded social interactions that farmers developed with their context. Likewise the relationship between brokers and farmers was also crucial in developing good quality and desirable products that final consumer would prefer. However, as the global economic crisis in 2008 occurred and affected the agricultural sector in developing countries, it was evident the significant and negative impacts on the start-up and farmers that depended on agricultural exports.

1.2 Introducing the Mexican Agricultural Sector

The aim of this chapter is to provide an overview of the agricultural sector in Mexico. In this section I will explain the importance of the agricultural sector in terms of land use and traditional economic activity. Then I will present the

¹ AgroBaja was a start-up firm that produced organic herbs to the United States. AgroBaja is complete different firm that had no relation or link to San Francisco Produce/Peninsula Organics.

contribution of agriculture to the Gross Domestic Product (GDP) and its participation as a liberalised sector in the international economy. The stratification of the types of firms that are dedicated to agriculture and their characteristics. In addition, I present the context of the agricultural sector of northwest Mexico.

Agriculture in Mexico is more than a productive sector. Beyond its economic contribution to GDP, it represents a set of functions that are important in the development trajectory of the country. To begin with, the country's territory accounts for 198 million hectares, from which 73% are dedicated to agricultural activities. Around 30 million hectares are cultivated and 115 are rangeland. In addition, forest and rain forest cover 45.5 million hectares. One of these functions is food production, which is provided by this sector and with some import foods such as corn. It also includes its provision for food industry highlighting how crucial the agricultural sector offer is for food security. Ultimately it effects the living costs, life quality and income of the population dedicated to it (FAO and UN 2009).

In 2010 the Gross Domestic Product (GDP) generated by the Mexican economy was of \$ 13,075.8 billion pesos. Primary activities accounted for 4.0%, composed as follows: the main activity was agriculture with 65.0%; followed by livestock with 28.2%; subsequently, forestry, fishing and hunting which contributed with 6.8% to GDP primary (González 2012a). Among its production, in 2010 the value of grain production was 87% for grain maize; while sorghum contributed with 55%. Regarding vegetables, relevant crops were tomatoes, 24%, and green chili with 21% of the production value of this item. Finally, fruits such as avocado contributed by the 24% value and orange

with 9%. Hence grains remain the main item of the value of agricultural production (González 2012b)

At the same time, this sector is a core activity in rural areas, where 37.5% of the population still lives in there (that is 41.5 million people). Thus rural development is relevant for national economic growth. Between 1994 and 2010, primary activities have lost importance in the generation of employment and contribution to GDP, while non-agricultural activities, especially those related to food manufacturing have higher growth, even compared to the average of the economy (Ibid). The reasons for the low growth in agricultural activities are: the development of low-productive technical and business skills, insufficient technological innovation, low productivity and limited access to markets (González 2012c).

Despite the low contribution of primary sector to GDP, agriculture represents more than 50% of total contribution of the primary sector², which is sustained by the value of the production, and enhanced by the integration and adjustment to global market needs.

² The primary sector in Mexico's economy is formed by agriculture, fisheries, mining.

Table 1 Main export products, their production areas and value in USD

Product	Province	Export value in million US Dollar
Tomatoes	Sinaloa, Sonora and Baja California Sur	1,856
Avocado	Michoacán	1,228
Pepper (bell)	Unspecified	876
Vegetables	Sinaloa and Sonora	524
Raspberry	Unspecified	513
Cucumber and pickles	Sinaloa	436
Onions	Baja California and Tamaulipas	358
Watermelon	Sonora	316

Source: (SAGARPA 2012)

One of the major achievements for Mexico in terms of foreign trade was the consolidation of the Free Trade Agreement (NAFTA) in 1994 with the United States and Canada. From that time on, trade flows began to grow making Mexican agriculture one of the most liberalized in the world. Hence the effects were immediately noticed in agriculture. As a result, one of the major shifts was crop patterns that shifted from growing mainly grains to fruit and vegetables. Another government incentive was export oriented policies to target the big demand from the US and Canadian markets. In this sense, agriculture has become an export oriented activity for the past 20 years. Due to the incorporation into global economy, between 1994 and 2010, food exports grew at an annual average rate of 8.5%, while agricultural imports grew at an annual average rate of 6.3%. In 2009 the country accounted for 73.3 % of the value of imports and 72.7 % of the value of agricultural exports. These statics shed light on a competitive and internationalised agricultural sector. Mexico also maintains a trade relationship with the European Union, which accounts

for 8.7% of the value of exports and Chile which provides 1.4% of the value of agricultural imports (González 2012d).

The main destinations of exports are United States, Japan, Canada, Venezuela and Guatemala, which all together represent 84.7% of total agricultural exports. According to the press release #150/40 from the Mexican Ministry of Agriculture, Mexico's agricultural exports in 2013 grew 7% in comparison with 2012, with total value of 24 thousand 408 million USD.

1.3 An Overview of Organic Agriculture

Organic Agriculture has gained importance within the Food Systems of many countries around the world. The International Federation of Organic Agriculture Movement (IFOAM) defines organic agriculture as “a production system that sustains the health of soils, ecosystems and people; relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects; and combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved” (FiBL & IFOAM 2017 p.25) .

According to the latest report of FiBL³ , as of 2015, 179 countries had available data on organic agriculture. In 2015, there were 50.9 million hectares used for organic agriculture and almost 2.4 million organic crop producers worldwide. Table 2 shows that most of the agricultural land is located in Latin American countries (6.6 million Ha), with Asia (3.9 million Ha) and Africa (1.7 million

³ English translation from German, Research Institute of Organic Agriculture. FiBL (Das Forschungsinstitut für biologischen Landbau)

Ha). Furthermore, more than 89 percent (2.1 million) of the organic crop producers were located in developing countries. According to Table 2, Africa, Asia and Latin American countries concentrate the 89 percent of organic crop produces (FiBL & IFOAM 2017 p.25,26,62 and 74).

Table 2. Countries on the DAC list: Development of Organic Agriculture Land 2010-2015

Region	2010 (Ha)	2011 (Ha)	2012 (Ha)	2013 (Ha)	2014 (Ha)	2015 (Ha)
Africa	1,075,556	1,072,848	1,148,867	1,210,048	1,259,955	1,682,775
Asia	2,377,369	3,629,476	3,150,217	3,321,944	3,482,483	3,882,363
Europe	432,006	479,120	546,781	476,759	508,942	508,080
Latin- America	7,138,843	6,564,681	6,542,592	6,407,154	6,424,945	6,602,464
Oceania	17,141	50,691	53,370	62,511	85,159	73,802
Total	11,040,915	11,796,815	11,441,827	11,478,416	11,761,483	12,749,462

Source: FiBL survey 2017, based on information from the private sector, certificates, and governments. Willer & Lernoud (2017a)

Table 3. World: Development of the numbers of producers by region 2014-2015

Region	2014 (no)	2015(no)	Change 2014-2015 (Ha)	Change 2014-2015 (%)
Africa	593,049	719,720	+126,671	+ 21.4
Asia	901,578	851,016	-50,562	-5.6
Europe	337,773	349,261	+11,488	+3.4
Latin America	384,852	457,677	+72,825	+18.9
North America	17,062	19,138	+2,076	+12.2
Oceania	22,115	22,021	-94	+0.4
Total	2,256,429	2,417,414	+160,985	+7.1

Source: FiBL survey 2017, based on information from the private sector, certificates, and governments. Willer & Lernoud (2017a)

The country with the most organic crop producers is India with 585,000, followed by Ethiopia (with 203,602) and Mexico (with 200,039). In this regard, in 2015, there has been an increase in the number of producers of over 160,000, or over 7 percent compared with 2014. Ethiopia, the Democratic Republic of Congo, Peru, Mexico and Kenya all reported significant increases (Willer & Lernoud 2017b)

1.3.1 Characteristics of organic agriculture in Mexico

Over the past 20 years, Mexico has been a producing country of organic products with most of its production destined for export. Mexico produces more than 200 different organic products with coffee accounting for over 50 percent of the production. Other crops grown are corn, sesame seeds, cacao, vegetables, herbs and fruits, pulses, vanilla, and sugar cane. Mexico is the largest exporter of organic coffee (Guzmán Contró 2009). Organic agriculture gained importance due to the current Mexican context where conventional agriculture appears to have negative effects on the environment. In addition, the majority of organic agriculture farmers in Mexico are smallholder farmer, although there are few large and medium farmers. This context requires the development and implementation of alternative practices to grow higher value crops (Gomez et al. 2016, Salcido 2011)

During the 80s, developed countries showed a demanded for organic tropical produce. In developing countries like Mexico, specifically, at the end of the 80s, organic agriculture began due to the demand of developed countries and because of the climatic conditions that allowed production during the winter time. In the early 90s, with the presence of international actors such as traders, Non-Government Organisations (NGO) and religious groups, organic

agriculture was advocated as an alternative way of doing agriculture and as a response to complement and diversify the demand for tropical produce in international markets (Gomez et al. 2000 in Schwentesius Rindermann et al. 2014, Gómez Tovar et al. 2003, Gomez Cruz et al. 2009)

These international actors established contact with local farmers with the intention of encouraging growing produce based on organic agricultural practices, mainly in areas where chemical inputs had not been used. (Gómez Tovar et al. 2003). In this regard, Map.1 shows the geography of where organic agriculture in Mexico began, primarily in southern region, in the states of Chiapas (1) and Oaxaca (2). These two states have more than 49 percent of the organic agriculture dedicated to coffee production. However, throughout the 90s and 2000s, organic production spread to other states such as Tabasco (4) with 90.5 percent of the organic land used for cacao, Michoacán (3), with 50.7 percent of organic land used for avocado, Sinaloa (6) with 80.4 percent of organic land used for vegetables, Jalisco (7) with 70 percent of organic land used for agave (Schwentesius Rindermann et al. 2014, Gómez Tovar et al. 2003; Gomez Cruz et al. 2009; (Gonzalez Silva 2018); (González & Nigh 2005).

The 2016 statistics from The Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (Mexico's Agriculture Ministry), indicate that in terms of land used for organic production, coffee⁴ is still the crop covering the largest area with a total of 20,916.45 Ha. Of this 11,031 Ha is grown in Chiapas (1) 5,220.75 Ha in Oaxaca (2) and 4,664.20 Ha in Nayarit (8). Avocado cultivation covers the second largest area of land with 7,133.70 Ha in

⁴ Coffee has been Mexico's flagship organic crop, and indigenous smallholder cooperatives, primarily in the states of, have successfully conquered limited but lucrative European and US markets for high quality. (González & Nigh 2005).

Michoacán (3) alone. However, when taking into account the value of production, Michoacán (3) with avocado and black berry is the most important, then Southern Baja Peninsula (5) with 623.5 Ha of tomatoes (SIAP 2016).

Map 1. Geography of Organic Agriculture



Schwentesi Rindermann et al. (2014), have reported an average growth rate of the land dedicated to organic agriculture of 19.17 percent in the period between 1996⁵ and 2012. Impulso Orgánico Mexicano A.C. (2014) based on the

⁵ Schwentesi Rindermann et al. (2014) pointed out that 1996 is the year when the data started to be collected.

statistics of CIIDRI⁶ in 2013 estimated that Mexico had 512,246 Ha dedicated to organic agriculture undertaken by 169,570 farmers. Furthermore, The FiBL and IFOAM (2017) estimated that, in 2015 Mexico had 584,093 Ha of organic agriculture and 200,039 farmers. The geographical location of organic agriculture in Mexico is related with poverty. Its growth is mainly concentrated in the southern provinces such as Chiapas and Oaxaca.

Even though organic agriculture has attracted the attention of some large and medium farmers, the majority are smallholder farmers grouped in organisations that could have about 12,000 members. In the year 2000, around 98 percent of organic farmers were smallholder and indigenous farmers, with an average of 2 Ha per farmer. These smallholder farmers accounted for 84 percent of land used for organic production and generated 69 percent of income for the organic agricultural sector. Medium and large farmers which represent less than 2 percent of the total, 15.8 percent of the organic land and generated 31 percent of the income for the organic agricultural sector.

The economic aspect of organic agriculture is the main factor for farmers, especially smallholder, when deciding to grow organic crops. The lack of economic resources is the main concern. For example, the transition stage demands financial resources. The cost of doing the transition from conventional to organic make it imperative for accessing financial aid. This is due to the cost associated with technical advice, inputs and organic certification. Also, opportunities for trading in the Mexican and international markets are determinant factors for farmers and smallholder farmer sin

⁶ English translation for Centre for Interdisciplinary Research for Integral Rural Development at Chapingo University.

particular (Nelson et al. 2010, Schwentesius Rindermann et al. 2014, (Solleiro & Mejia 2016). Mexico is considered a producer and exporter of organic foods, where 85 per cent of its organic production is exported and 15 per cent is for national consumption (Esocobar-Lopez et al. 2017).

The objective of this research project is to provide an understanding about the competitive capabilities in smallholder farmers the agricultural sector; how this process takes place, the actors involved and therefore the outcomes. Also, as part of the project, is to offer a diagnosis as to what the sector needs in terms of innovation and competitiveness and what other alternatives to enhance the performance of smallholder farmers. In this regard, for this PhD project, I study San Francisco Produce/Peninsula Organics as case. The value chain has been under operations for the past 30. It is a food chain based on the idea of farm-community centred on production and supported by international market opportunities.

San Francisco Produce/Peninsula Organics is formed by a group of smallholder farmers located in southern Baja Peninsula and Sonora Mexico and a broker firm located in San Francisco CA, US. Both farmers and broker firm have made a cooperative partnership to take advantage of market opportunities. The broker firm has a social purpose and supports farmers that are subsistence and local oriented. The broker firm supports farmers in Mexico in terms of financial, technical, technology and commercialisation needs. Therefore, farmers in Mexico are integrated to international markets, are export oriented, take advantage of international prices. I will describe San Francisco Produce/Peninsula organics in more detail in chapter 4.

1.4 Structure of the Thesis

The rest of the thesis is structured as follows: *Chapter 2 Research Design, Data Collection and Analysis*, I explain the methodological underpinnings of the research project, and the decisions I made and how I carried out that plan until the final stage of data collection and what decisions I made on the analysis of data and how I did it. In chapter 3 *Literature Review* gives critical narrative on Globalisation of Production and learning for production capabilities based on two main theoretical streams of Global Value Chains (GVC) and Technological Capabilities (TC). In chapter 3, I argue that there is a perceived need for empirical evidence that sheds light on how lead firms and smallholder farmers handle together the meeting of stringent and costly requirements to be part in value chains.

In this regard, I formulated the following research objectives. First objective is to *examine the social purpose in San Francisco Produce/Peninsula Organics*. The second objective is *understand how participating farmers in San Francisco Produce/Peninsula Organics learn to develop skills for production of organic crops*. These objectives guide the research to the dynamics in which these farmers learn to be organic export farmers. I formulated the following research questions:

1. *How do smallholder farmers display competence in the community of farmers of San Francisco Produce/Peninsula Organics?*
2. *How do smallholder farmers in SFP/PO learn the skills for production capabilities to become part of the Global Value Chain?*
3. *How does technological change occur in smallholder farmers' production capabilities?*

In *chapter 4: Conceptual Framework*, the chapter connects San Francisco Produce/Peninsula Organics (SFP/PO) as the case study and the framework to analyse it. In chapter 4 I explain how I built the conceptual framework for my PhD project by sketching out the case. I draw on context of San Francisco Produce/Peninsula Organics and the effects of smallholder farmers, namely the change in the production system, crop pattern, export-oriented market and certifications (organic and food safety). To address these issues, I explain my choices for four different stream of literature: Global Value Chain (GVC), Technological Capabilities (TC), Communities of Practice (CoP) and Knowing in Action (KA) and which parts of them help me in my analysis. As my findings will discuss, social purpose, in San Francisco Produce/Peninsula Organics drives the logic in which full range of activities, connections and interactions among farmers address rural livelihoods based on and taking advantage of global markets.

In chapter 5 *SFP/PO: Achieving Social Purpose through Agricultural Value Chains*, gives the first empirical findings. The chapter addresses the first objective of *examining the social purpose in San Francisco Produce/Peninsula Organics*. I address the case of San Francisco Produce/Peninsula Organics, a) production activities smallholder farmers do in SFP/PO and b) the social purpose of San Francisco Produce/Peninsula Organics. I use the concept of Global Value Chains (GVC) due to its pertinence to reflect and describe the connections between suppliers, global buyers, and production activities farmers carry out to produce added value crops. Although San Francisco Produce/Peninsula Organics is similar to any Global Value Chain in that it has a function of input-output to deliver a product with added value, it distinguishes itself from other Global Value Chain due to its social purpose of *providing economic opportunities to smallholder farmers, improving smallholder farmers' living conditions and*

teaching organic farming practices. I argue that San Francisco Produce/Peninsula Organics is a Global Value Chain that achieves social purpose to smallholder farmers by integrating its social purpose into the input-output function for value creation in the production of organic produce for export. The social purpose addresses the rural livelihood, inclusion of smallholder farmers and the promotion of learning for production skills. The social purpose enables collective engagement among smallholder farmer, Global Buyer and leaders in the chain to support themselves financially, technology learning and comply with agri-food standards.

In chapter 6: Learning Technological Capabilities in a Community of Practice, I present the second empirical chapter. This chapter address the first research question of the thesis, *How do smallholder farmers display competence in the community of farmers of San Francisco Produce/Peninsula Organics?* I argue that San Francisco Produce/Peninsula Organics (SFP/PO) as Global Value Chain, has a social learning system where smallholder farmers as practitioners of organic agriculture learn by interacting with competent farmers. These interactions consist of idiosyncratic elements that together form a social learning in San Francisco Produce/Peninsula Organics. Moreover, smallholder farmers and their firms rather than behave as individual firms, farmers behave in San Francisco Produce/Peninsula Organics as a Communities of Practice, that is, it's collective and therefore has idiosyncratic elements in the social learning.

In chapter 7: Analysing learning in production capabilities in San Francisco Produce/Peninsula Organics, I analyse how participating farmers in San Francisco Produce/Peninsula Organics learn the skills for producing organic crops. In this chapter I address the second research question of *How do*

smallholder farmers in SFP/PO learn the skills for production capabilities to become part of the Global Value Chain? For this analysis, *social learning* is a constructive exchange of experiences within a social infrastructure for which that experience is meaningful. The social infrastructure is the context of people, the relationships of people and the interactions that occur among them. Through the social infrastructure is where knowledge is constructed rather than transfer (Wenger 2010). For analysing the learning of Technological Capabilities (TC) in smallholder farmers, the organic farming practices for production activities, I use *Knowing in Action* framework by Amin & Roberts (2008) to examine and explain the elements of learning in smallholder farmers that participate in Global Value Chains (GVC)

Chapter 8: Technological Change in farmers in San Francisco Produce/Peninsula Organics: an agenda for continuous learning. In this chapter I address the third research question of *How does technological change occur in smallholder farmers' production capabilities?* I develop the following argument: In San Francisco Produce/Peninsula Organics, farmers as practitioners in the community have an agenda that enables to continuously embrace in an effort for learning driven by leadership in farmers, connectivity and brokering relationships among them and by defining learning projects. Consequently, farmers as a community of practitioners are able to support other farmers in their learning from basic production skills (Technological Capabilities) like agricultural activities to more complex task as developing their own seeds and technical solutions.

And, chapter 9 I bring all the empirical findings together. First I focus on the social purpose of San Francisco Produce/Peninsula Organics. The value chains social purpose is clustered around three aspects, i) *providing economic*

opportunities, ii) improving smallholder farmers' living conditions and iii) teaching organic farming practices. Second, I focus on idiosyncratic elements regarding firms and learning strategies. San Francisco Produce/Peninsula organics case contextualises production of organic crop from its conception to the final consumer. The contextualisation in this value chain is that it enhances relationships among smallholder farmers without overlooking co-ordination between firms. For production capability development farmer identity and their practice provide the idiosyncratic elements of their learning. In this value chain social learning, interactions between competent and novice farmers allow the sharing of knowledge, its co-creation and thus the learning of practices which carry meaning for farmers due to its link with smallholder farmers experience. Through social learning, farmers modify their skills towards organic agriculture.

And finally, San Francisco Produce/Peninsula Organics due to a robust and wide fabric of connectivity in which farmers interact, enabling the flow of experiential knowledge. Through the connectivity and brokering experiential knowledge circulates throughout the value chain, which enables smallholder farmers to further develop their practice into technical solutions and do incremental innovation.

Chapter 2: Research Design, Data Collection and Analysis

2.1 Introduction

In this chapter I explain the methodological underpinnings of the research project, what Blaikie (2010) calls “the process of making all decisions related to the research project before they are carried out”. I explain the procedural decisions I made, how I executed the plan until the final stage of data collection, and the decisions I made on the analysis of data and the methodology behind it. The focus of the thesis is on understanding how unskilled smallholder farmers develop production capabilities in agricultural Global value chains (GVC) to comply with the requirements of Global Buyers (GBs).

San Francisco Produce/Peninsula Organics (SFP/PO), (the case study) claims to be a food system with a social purpose, where smallholder and marginalised farmers are integrated in the value chain driven by the idea of a farm community. The research design and methods had to be responsive to this context. The chapter is divided into seven sections to outline the research design, the strategy used, the ontological and epistemological assumptions and methods I decided upon.

First, I explain the development of the research topic shedding light on the context of the northwest region of Mexico. Then I outline the research design. I begin with the ontology and epistemology of critical realism. Then I explain the Case Study (CS) as a methodological strategy, the sampling strategy, the

selection of pilot data and SFP/PO as the case study. I outline the method chosen for data collection. Then I discuss the data collection process, explaining its preparation and conduct. I also explain the analysis of data and the approach I used. I outline the ethical considerations, the handling of data collected and consent procedures. Finally, I summarise the chapter and decisions I made.

2.2 Research problem: developing the topic for research

The realisation of this PhD project developed out of my personal interests in understanding the integration of unskilled, smallholder farmers into export-oriented added value activities in agricultural value chains. Specifically, my interests focused on the development of production capabilities that this type of farmer needs. The underlying importance of production capability development is that unskilled and smallholder farmers are required to learn agricultural practices for producing new crops, new production systems, and quality and certification standards. The topic is pertinent considering that in Mexico, more than 90% of farmers are within the categories of subsistence and local market oriented, according to the study of The Mexican Ministry of Agriculture in 2012 (SAGARPA & FAO 2014). San Francisco Produce/Peninsula Organics is a value chain that can inform how smallholder farmers have been able to develop production capabilities and participate on international markets. My interest in these farmers and the value chain relies on their transitions in cropping patterns, production systems and orientation towards international markets. In addition, empirical evidence on the development of production capabilities to enable smallholder farmers to be part of global value chains, can have wider implications for other smallholder farmers.

In pursuing the development of this topic, during the early stage of the research process, I undertook a literature review with the help of two data bases containing a wider range of publications. In searching for Global Value Chains literature I used the data base of Global Value Chain Initiative (www.globalvaluechain.org) where I looked for key terms such as “agriculture”, “organic agriculture” and “farmers”. In addition, I reviewed literature on Technological Capability (TC) Development and the relationship between these two literature bodies (GVC and TC). In this search I used the online data base of The University of Edinburgh, where I looked for key terms such as “production capabilities”, “technological learning” and “skills”.

With this search I was able to find key articles to start the research which were relevant to the topic, i.e. the work on Global Value Chains (GVC) (Gereffi 1994; Gereffi et al. 2005; Lee et al. 2012) and Technological Capabilities (TC) (Lall 1992; Kessing & Lall 1992; Anon n.d.; Dutrénit 2004) and Morrison, Pietrobelli and Rabellotti (2008) which combines both GVC and TC. Thinking of the agricultural sector in developing countries like Mexico, and the participation of smallholder farmers in value chains, the case of San Francisco Produce/Peninsula Organics can shed light on how smallholder farmers can be upskilled to participate in global value chains.

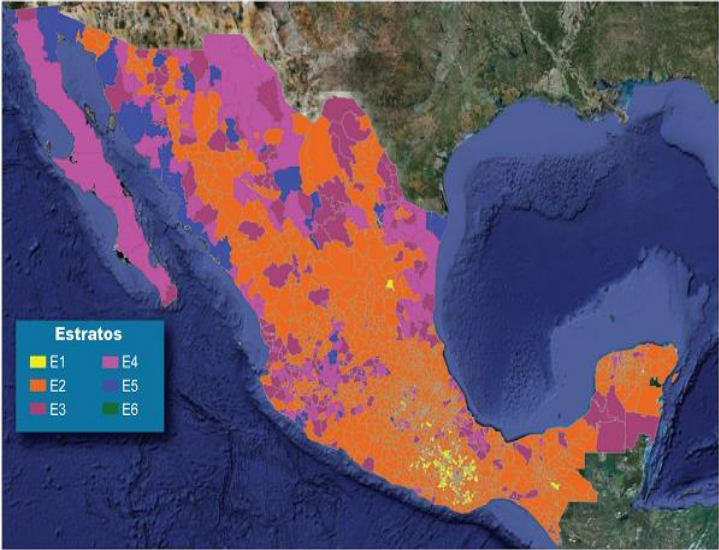
2.2.1 The context of the Northwest Region of Mexico

The agricultural sector in the northwest region of Mexico was chosen due to its context, where subsistence and smallholder farmers producing for local markets seems to transit towards export oriented and technologically advanced activity. This decision is based on data from a study by the Ministry

of Agriculture in 2012, called Diagnosis of Rural and Fishery sector in Mexico⁷. The study made a stratification of Rural Economic Units (REU), essentially farms. Farms were classified into 6 categories of Rural Economic Units (REU), from subsistence and serving local markets, to very competitive, export oriented and technologically advanced. REU of stratus (S) 1,2 and 3 identify farms which are the poorest, least developed and poorly linked to markets. These are mostly located in the southern region of the country, whereas REU of (S) 4,5 and 6; the most developed, highly market linked and technologically advanced are in the northwest region.

To better illustrate this context, see *Map 1 Geographic location of Rural Economic Units*. As the map illustrates, REU of stratus 4, 5 and 6 are in the north of Mexico. My interest focuses on the northwest region of Mexico, based on the indication of the presence of export oriented and technologically advanced farmers.

Map 1 Geographic location of Rural Economic Units

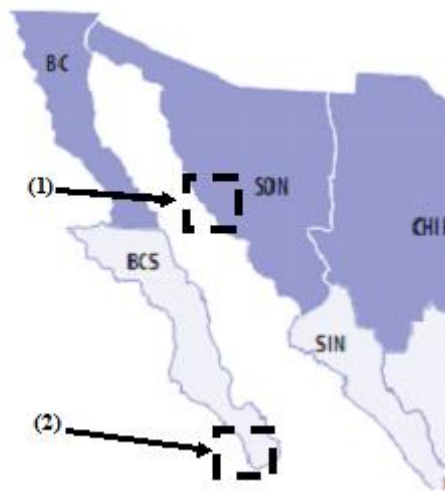


Source: (SECRETARÍA DE AGRICULTURA, GANADERÍA, DESARROLLO RURAL & ORGANIZACIÓN PARA LA AGRICULTURA Y ALIMENTACIÓN 2012)

⁷ The study in Spanish is called *Diagnóstico del sector rural y pesquero de México (SAGARPA & FAO 2014)*

The northwest region of Mexico is comprised of four states: Baja California (BC), Southern Baja (BCS), Sonora (SON) and Sinaloa (SIN). Given the time and financial constraints but most importantly, security issues, the provinces of Sinaloa (SIN) and Baja California (BC) were dismissed due to the presence of drug cartels and illegal check points. As a result, the two provinces left are Southern Baja (2) and Sonora (1).

Map 2 Northwest Region of Mexico



Source: fieldwork data 2014

The northwest region of Mexico is characterised by arid weather conditions, which present difficulties for agriculture. Despite these challenges, the area maintains efforts to remain competitive at national and international levels. From the early 1940s until the late 80s, farmers applied intensive production methods, with a large labour force, and high levels of use of fertilisers, pesticides and herbicides. Originally, production was intended to satisfy entirely the growing Mexican population. However, as the Mexican economy globalised, from 1994 onwards, the production pattern was transformed due to its integration to global markets, especially with the United States (US). The

region consolidated its position in global markets becoming a source of fresh produce for US markets during the winter time (Villa R & Bracamonte S 2011).

The northwest region of Mexico carries out agricultural practices that differentiate it from other areas. It is known for its capacity to adapt to new practices and comply with international standards that sometimes do not apply within Mexico itself. For example, when producing either organic or conventional crops, the inputs used must be certified free of contamination from heavy metals. In the case of organic production, inputs and produce must comply with international regulations such as the Organic Material Review Institute (OMRI) certification, food security standards like Good Manufacturing Practices (GMF), and Good Agricultural Practices (GAP), which are granted by international third-party audits. This ensures that harvesting and product manipulation are carried out in a consistent fashion which reduces the risks from diseases.

The manipulation of products must be carried out in pack houses to ensure good hygiene standards. Should there be any issue with the products, traceability systems are designed to identify type of product, the production unit from which it came from, who harvested and packed it. In this case, Sonora (1) and Baja Peninsula Sur (2) appear to comply with requirements set by international markets and change methods of production towards meeting what these markets demand. Furthermore, farmers have adjusted their production techniques and use of technologies maintaining new standards to remain competitive in markets.

In sum, the two states (Sonora (1) and Baja Peninsula Sur (2)) have been highlighted for their orientation to comply and fulfil international market

needs and introduce new production methods. In both states the agricultural sector is characterised by the application of new techniques and technology and productive diversification into organic production, an alternative system dedicated to products in high demand, and conservation efforts to minimize impact on the environment. Broadly, the focus on the northwest region of Mexico, particularly San Francisco Produce/Peninsula Organics case is based on the integration of smallholder farmers into added value activities, changing crop production methods and meeting international standards. The interaction between smallholder farmers as suppliers, and the wholesaler as global buyer, is central to understanding the development of production capabilities in value chains and therefore provides a focus for this research

2.3 Research Design

Having stated the research problem, I now explain the research design to look at the experiences of smallholder farmers, how those farmers developed production capabilities to comply with production, quality and certification standards as well as production system. For this research I drew on a critical realist approach to carry out my research based on how I understand the world.

2.3.1 Worldview: Ontological and Epistemological assumptions

My underlying epistemological assumption is that there is a reality out there. However, as social beings, we have our own beliefs and cultural background, and these play a significant role in the construction of our social world. This means that our subjectivity coexists with the natural world.

Starting from this worldview requires a critical realist approach to research design. The ontological position I take concurs with Easton's (2010) description: "critical realists argue that in the real world there are entities, such as organisations [...]". I argue that critical realism is aligned with the social concept of Value Chains because Value Chains are a social entity: an organisational form of production that is socially constructed. Easton (2010) argues that these entities have powers to act and are liable to be acted upon by others. I frame San Francisco Produce/Peninsula Organics as a Global Value Chain, including a full range of activities that firms and workers undertake to bring a product from its conception to its end (Global Value Chain Initiative 2014), where the cooperative relationships between farmers are driven by the notion of a farm-community, where the farmers create cooperative relationships that help them to learn and innovate.

In line with the epistemology of this approach, I use the insights of farmers as a source of knowledge to help understand how they developed their production capabilities. In obtaining the insights of farmers of SFP/PO, I place emphasis on their perspectives, by immersing myself into their stories of the events. That is, to view the meaning they created and understand the reality they have formed, i.e. how they developed production capabilities to produce organic produce and comply with international standards. This is necessary for looking at the relationships between farmers that consequently enable them to develop production capabilities. For example, the fact that farmers were previously unskilled and now can comply with standards, goes in line with the assumption of a real world that coexists with subjectivity of those [farmers] that believe in the idea of a farm-community. In this coexistence, Easton (2010) states that although critical realism distinguishes between the real world and social constructions, the actual events, that is, the accounts of

farmers of their learning process, can still be captured and recorded. In my opinion, the development of production capabilities in San Francisco Produce/Peninsula Organics is a social phenomenon intrinsically meaningful regarding the accounts of its farmers because the meaning they attribute to it is not only externally descriptive of them but constitutive of them also. The meaning farmers attribute to their relationships is about understanding, not measuring.

2.3.2 Case Study

I chose *Case Study (CS)* as research strategy. This decision was based on my critical realist worldview and the strengths of the CS approach, such as its holistic view and flexibility for data collection. Yin (1994, p.3) and De Vaus (2001) state that the distinctive need for case studies is the desire to understand complex social phenomena, and the distinguishing characteristic of CS to enabling researchers to understand it. Looking at San Francisco Produce/Peninsula Organics as a value chain implies a holistic perspective. Having a holistic perspective allows me to obtain valuable knowledge about the interactions and cooperative relationships among farmers and how this value chain enables the development of production capabilities as a whole. As an embedded CS, San Francisco Produce/Peninsula Organics and their smallholder farmers allow me to have a thorough perspective of the alignment there exists with the idea of a farm-community and underlie the insights of farmers to identify similarities.

In selecting CS, another characteristic considered was its flexibility in data collection methods. CS is an adequate strategy for both, qualitative and quantitative methods. I opted for qualitative methods given my interests in

capturing farmers' insights. In combination with my worldview, CS provides the flexibility that justifies the meaningfulness of farmers' insights regardless of the numbers of research units involved. In this project, farmers' accounts are important because they explain the process of how they learned their production capabilities in their own thoughtful and in-depth manner. CS is well suited with *Critical realism*. The suitability lies on its accordance with a real world out there and its coexistence with subjectivity. The subjectivity is related to the value chain concept of dispersion of production activities, and the idea of a farm-community, which is entrenched in it and the participating firms and farmers (Easton 2010).

Another consideration for CS strategy is the "how" nature of my research questions⁸. "This is because such questions deal with operational links needing to be traced over time, rather than mere frequency or incidence" (Yin, 1989 p.18; Yin, 2003, p.6 in Easton, 2010). In line with the argument of Verschuren (2003), Case study research allows the researcher the opportunity to disentangle a complex set of factors and relationships. Hence, CS allows me to move continuously back and forth, providing enough flexibility for asking interviewees more questions between the diverse stages of the research project.

However, from the methodological stand point, CS strategy presents some criticisms. One of the major criticisms of CS is its lack of generalisation of findings. Considering this aspect of CS, I generalise San Francisco Produce/Peninsula Organics to other cases within the boundaries of the conceptual framework I have used. According to Mookherji & LaFond (2013), by staying within the boundaries of the conceptual framework, I establish the

⁸ The research questions are presented and explained in the chapter 3, Literature Review.

connections between literature and data. These connections are to present tendencies of San Francisco Produce/Peninsula Organics case to engage with similar contexts and peculiarities of other cases.

Another CS criticism extends from issues of external validity (Yin 2013). To achieve external validity for generalisation, I used the criteria of Flyvbjerg (2006), where the atypical case like San Francisco Produce/Peninsula Organics often reveals more information. San Francisco Produce/Peninsula Organics' activities with its participating farmers [actors] sheds lights on mechanisms of learning among farmers (p.13). San Francisco Produce/Peninsula Organics offers the chance to go in-depth and extract lessons from which generalisation can be made within the boundaries of theory and similar contexts (Gerring 2011; Yin 1994b, 2013; Simons 2015; Flyvbjerg 2006)

2.3.3 Sampling

Given the qualitative nature of the research, there was no need to establish a representative sample of firms for which statistical analysis would not be appropriate. This provided the flexibility in terms of firms to look at. However, there was a need for rich and thorough insights from farmers that could provide valuable qualitative data. To meet this need, I followed a systematic approach and established criteria to select a case study and its parts that were interesting and would fit the concept of value chain. As a result, I developed a list of 19 firms that would guide the data collection process. As explained in section 2.2.1., the area to be covered corresponded to two states in Northwest Mexico, so that, identifying firms which were in connection with international markets systematically (i.e. names, locations, and info to contact them) helped save valuable time and financial resources.

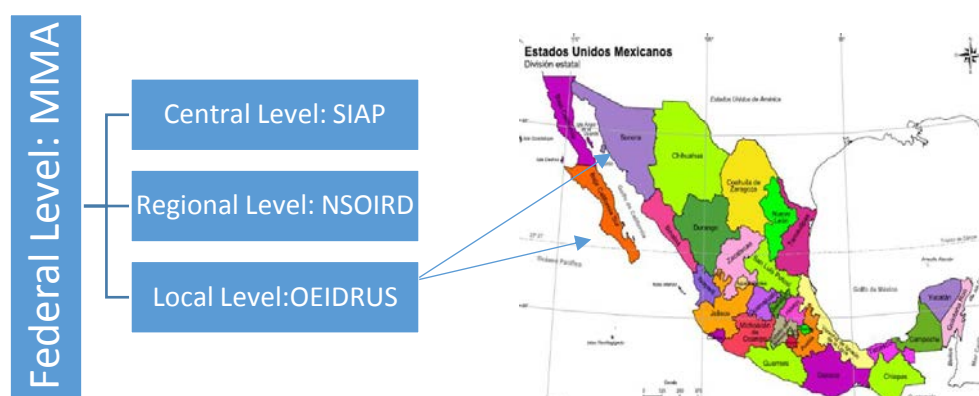
To complement the systematic approach to sampling, I used snowball sampling as supportive method due to the way that farmers referred to other farmers. I used snowballing during the pilot stage, which escalated the number of participants, and consequently led me to discover a more organised value chain. This sampling technique fitted with the methodological decision of obtaining the insights of smallholder farmers and worked as an indication of cooperative relationship of smallholder farmers that participate in the same value chain. In the farmers' insights, they know who they got information from and to whom they passed it on. This provided a context of social relations among farmers. By using this technique, rapport was created with farmers that were genuinely interested in telling their story. The creation of rapport was eased by the fact that recommendation came from other peers they interact with on a regular basis.

2.3.4 Selecting the case

The case selected was San Francisco Produce/Peninsula Organics (SFP/PO). SFP/PO is an embedded CS formed by other farmers [firms]. Embedded CS allowed me to build up a holistic picture since it takes into account both the constituent parts and the whole (De Vaus 2001a, p. 220) The units of analysis in SFP/PO case are the smallholder farmers because they developed production capabilities. I followed a systematic approach to select firms to visit, and then interview key people. As a result, a list of firms was produced based on data published by Mexican government agencies. In the following lines I explain what sources I used and why, and the steps I took to produce the list.

1. The two sources used to construct the list were data bases from The Mexican Ministry of Agriculture (MMA)⁹, the federal agency responsible for policies that support agriculture to enable competitiveness in national and international markets. In addition, to comply with this responsibility, the agency has an office called SIAP¹⁰, which mission is to provide reliable information for farmers, fish producers and traders by coordinating the National System of Information for Rural Development in every province of the country to collect statistical data.

Figure 1. Agricultural statistics data bases in Southern Baja and Sonora



Source: Author's own interpretation

For Southern Baja, the data base was <http://www.oeidrus-bcs.gob.mx/>. For Sonora, <http://www.oeidrus-sonora.gob.mx/>. Both data bases gather information on a yearly basis, of the type of products, the varieties grown, and the area cultivated in hectares, the area harvested per product, product value per ton (metric ton) and value of total production. These elements of information provide the basic criteria to look at the crops with highest value,

⁹ For the purpose of making it easier for my reader, I use the words Ministry to refer to any governmental agency and Minister as the head of that agency as they're in the UK and Europe. www.sagarpa.gob.mx/

¹⁰ SIAP in Spanish stands for Information Service of Agriculture and Fisheries.

which in most cases are being exported to international markets. In addition to these sources, another source was consulted: The Risk Reduction Contamination Programme (RRCP) published by MMA on a yearly basis at <http://www.senasica.gob.mx/?id=3449>. The report is a list of nationwide firms certified by the MMA and shows compliance with Mexican food safety standards in field and pack house, and type of crops produced.

The relevance of this list of certified firms is because they have identified potential risks in the handling and packaging of fresh produce in their operation. It serves as an indication of the existence of a protocol with a series of steps to prevent those risks threatening their harvesting and packaging processes. The certified firm assures its compliance to strict food security standards and sanitation at the time of harvest and post-harvest manipulation to ensure the safety of products for consumption. Furthermore, this list provides the *names of firm, contact information such as phone number, head of the unit or firm, email address, type of certification: whether field, pack house, or of both and type of crops the produce*. This type of certifications is the minimum required to export their produce to international markets.

1. For Southern Baja, as there is conventional and organic production, I selected the products with the highest value per ton (metric ton), which were organic, and conventional products came in second place. For Sonora, the database only shows conventional production, so I applied the same criterion: the products with the highest value per ton were selected.

OEIDRUS Southern Baja
OEIDRUS Sonora

• Information on: type of products, variety, and grown surface in hectares, harvested surface per product, product value per ton and value of total production in both conventional and organic

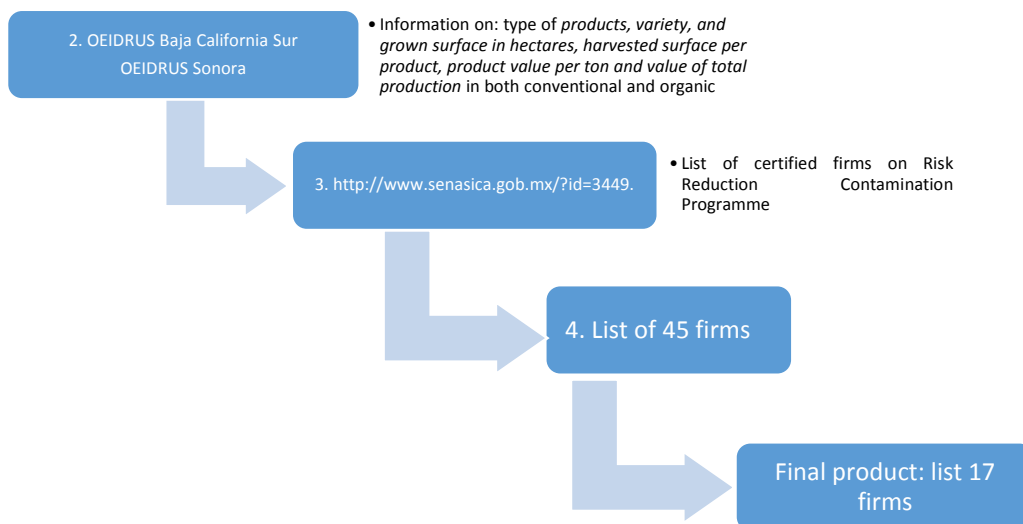
2. With this new information, I could now cross reference the list of certified firms with the type of certification and crops, with the crops of highest value obtained from the data base mentioned in point 2. The next step was to combine both sets of information into one table based on the following elements: *name of the firm, location and type of crop*. To select the crop that would go onto the new combined list, the criterion I applied was based on matching the crop with the highest value and the crop that appears on the list of certified firms. This created a list of 45 companies: 9 in Southern Baja and 36 in Sonora.
3. With this new list of 45 companies: 9 in Southern Baja and 36 in Sonora, I made a final complementary step. The step consisted of searching the website of every firm on the list to look for additional information regarding certifications. In sum, 12 firms have websites which effectively provided important information on other types of certifications, such as organic certification, Food and Drug Administration (FDA) certification, C-TPAT, USA GAP, Global GAP¹¹, and projects with international organisation. So, to make a finer selection, I included those firms with international certification only. The final product of the systematic process was a list of 17 firms located

¹¹ FDA (Food and Drug Administration) (Administration n.d.), C-TPAT (Customer-Trade Partnership Against Terrorism) (U.S. Customs and Border Protection n.d.), USA and Global GAP (Good Agricultural Practices) (Agriculture 2015; G.A.P n.d.)

in Southern Baja and Sonora. The firms have the same products either organic or conventional, along with basic standards which denote production for national markets, but also international standards showing their compliance with international markets and their participation in GVC. The entire process to select the firms is summarized at the

4. Figure 2.

Figure 2. Process of selecting firm



2.3.5 The pilot case study

I opted for the pilot case study as additional strategy to CS. I conducted the pilot case study to confirm i) the appropriateness of my theoretical concepts, ii) test out the interview schedule, and iii) to refine and overcome potential obstacles with future interviews. According to Yin (1994a), the pilot case is a tool which helps investigators to refine their plans for data collection with respect to the content of the data and the procedures to be followed. The pilot

study was for me, the pivotal point for all adjustments necessary to accomplish the objectives and prevent delays or lack of information as much as possible.

In *selecting the pilot case*, I drew on the list of firms I created. The selected firm was item number 8 (see appendix 1). Financial convenience and the history of the firm were the two criteria used to select the firm. Additionally, from the two provinces, Southern Baja Peninsula and Sonora, I selected southern Baja Peninsula, which is convenient because this firm is located only 15 km from my hometown, so it suited my financial resources providing flexibility for travel.

This firm fitted the role of “laboratory” for me due to its profile: 17 years of operation, having been started in 1998 by two conventional farmers in the locality before subsequently being invited in 2001 to produce organic cherry tomatoes, becoming the most experienced organic-only producers in the locality. Currently, the firm has 514 hectares certified organic by the USDA NOP (United States Department of Agriculture-National Organic Program) and Mexican food safety certification. The insights of farmers allowed me to capture development of production capability, by identifying the mechanism(s) involved in the learning process during the transition from conventional to organic farming.

The interviews were conducted with the person responsible for each part of the agricultural operation, such as field, certification, pack house and managing director. The interview schedule had topics regarding origins of the firm, the circumstances why they shifted from conventional to organic, and how the firm was able to devise the protocols for both certifications. The first two interviews conducted were to the Chief Executive Officer (CEO) and the

Chief Financial Officer (CFO). In the fields I also interviewed the Chief Operations Officer (COO) and the Pack house Manager. The Chief Operation Officer (COO), is responsible for maintaining the organic certification (OC) and CRRS certification. The desire to get a deeper and richer account as to how the farmers in this firm develop their capabilities, influenced my decision for asking as many questions as possible. The pilot case was helpful exercise to assess the strengths and weaknesses of the interview schedule and the methods to collect data.

The qualitative nature of this research project provides enough flexibility for a non-representative sample to select the case study. However, in selecting the case study, I took into consideration how the boundaries of a systematic approach help maintain consistency. As a pilot case, it reinforces and refines the conceptual tools and allows adjustments in the undertaking of the research.

2.4 Methods of data collection and analysis

In selecting the methods for data collection, I opted for semi-structure interviews, guided by an interview schedule. In addition to this, I also opted for collecting documents¹². Together, semi-structure interviews and documents allowed me to understand the cooperative relationships among farmers, and the practices of organic farming in SFP/PO value chain. Schensul (2012) says that researchers must make decisions about study sites, the time-period during which a study is to be conducted, and the boundaries of the study population (p. 81).

¹² Technical plans, manuals, foundation acts, organic certifications, commercialisation contracts

In line with Schensul's argument, the timing for the data collection stage lasted 9 months in total, ranging from November 1st, 2014, until the 08th of August 2015. During the pilot case, I noticed that most firms on my list were part of the same value chain. To save time and reduce the probability of failed interview requests, I took advantage of their linkages and asked farmers to speak with the rest of farmers that produced for the same wholesaler on my behalf and ask them if they would grant me an interview. With this method I was able to guarantee the visit and interviews and make most of my fieldwork time. The final element I took into consideration was the off-season period of most exports firms, which was November 2014 and summer time (May, June and July) of 2015. During this time was very likely that most of the key people have more free time to talk given that in November, firms are about to start, and during the summer time firms are now planning the following season.

During data collection I reflected on the interview schedule to understand learning in production capabilities. For example, the results of the pilot case made it clear that cooperation amongst farmers was key to learning. Their accounts repeatedly expressed the importance of the support from more experienced farmers, as well as financial and technical support from the value chain. To capture this, I reflected upon the concept of Communities of Practices (CoP) (Wenger 1998; Wenger 2000). Furthermore, the pilot case indicated the social nature of the learning process, involving personal and virtual interactions, and the nature of those interactions. This introduced the concept of Knowing in Action (KA) (Amin & Roberts 2008) which was incorporated to the interview schedule.

Within the participating firms in SFP/PO, the decision is to focus on smallholder farmers because they are the main engine that make the value

chain work. The farmers are the “population” that has undertaken the development of production capabilities so their contribution to my study was vital. As the farmers within the firms are the unit of analysis, the levels in which I divided farmers were based on the positions they hold in their firms, namely those related to production such as Chief Executive Officer (CEO) Chief Certification Officer (CCO), Chief Production Manager (CPM) and Pack house Manager (PHM). Some of the firms have a farmer in charge of this position, but some other farmers also have more than one position, i.e. one farmer could be the CEO but also CCO. Although I use the term of Chief Executive, it was not intended to portray farmers who work on the land as office-based executives. On the contrary, although the farmers have such job-titles their main activities are carried out in the fields.

2.4.1 Semi-structure Interviews

I conducted semi-structured interviews in face-to-face situations enabling rapport between myself as researcher and the farmer in their setting (Blaikie 2010a). Schensul (2012) argues that the researcher is the primary tool for data collection (...) to investigate their research topic and construct their argument and the decisions they make as to how to use those tools and with whom (passim).

Arksey, H and Knight (1999) suggest qualitative interviews are the method that allow for *understanding and meaning to be explored in depth* because it helps examine *the context*. In sum, interviewing is a powerful way of *helping people to make explicit things* that have hitherto been implicit, to articulate their tacit perceptions, feelings and understanding (p. 32)

Qualitative semi-structured interviews explored the *understanding* of farmers, particularly, of what it was for smallholder farmers to learn production capabilities throughout the past 30 years, and what *meaning* they gave to their learning process, what use they could make out of them, and the benefit they saw in themselves and their activities as farmers. Semi-structured interviews allowed me to get into their memories and bring up elements of what it was like for them to learn to grow new crops under the organic system, and discover their motivations not just as individuals, but also as part of a collective of farmers belonging to the same value chain. With in-depth interviews, I was able to pinpoint those explicit elements and their learning process and interestingly, make them aware, to some extent, of what they have gone through. Farmers themselves were able to reflect the implicit and “normal” way of doing new things and make them explicit.

Table 4. Number of individual in-depth interviews from SFP/PO CS

Firm	Location	Number of individual Interviews	% of people interviewed	Value Chain	Date range
1	Southern Baja California, Mexico	9	75	SFP/PO	From 30 th /10/2014-18 th /01/2015
2	Southern Baja California, Mexico	9	70	SFP/PO	From 14 th /01/2015-07 th /07/2015
3	Southern Baja California, Mexico	9	90	SFP/PO	From 19 th /03/2015/-11 th /06/2015
4	Southern Baja California, Mexico	4	80	SFP/PO	From 13 th /05/2015-17 th /05/2015
5	Southern Baja California, Mexico	1	100	SFP/PO	31 st /03/2015
6	Southern Baja California, Mexico	1	100	SFP/PO	15 th /06/2015
7	Southern Baja California, Mexico	1	100	SFP/PO	16 th /06/2015
8	Southern Baja California, Mexico	1	100	SFP/PO	17 th /06/2015
9	Southern Baja California, Mexico	1	20	SFP/PO	17 th /06/2015
10	Sonora, Mexico	11	80	SFP/PO	From 09 th /07/2015-13 th /07/2015
11	Sonora, Mexico	1	100	SFP/PO	01 st /08/2015
12	Northern Baja California	1	10	SFP/PO	27 th /08/2015
Former Production manager and area co-ordinator of SFP/PO	Southern Baja California, Mexico	1	N/A	SFP/PO	19 th /03/2015
Total		50			

Source: Fieldwork data 2014-2015

As shown in Table 4 all the interviews were conducted with farmers from 12 firms that belonged to the same value chain. With this division of activities, I could identify the farmers that were involved in advising other farmers of San Francisco Produce/Peninsula Organics. At the same time, I was able to identify how interviewees learned to develop the skills and become capable farmers to meet the requirements of the global buyer.

Additionally, I used a triangulation strategy to validate the data obtained. Triangulation with internal documents, helped confirm the connections among farmers and the mechanisms of their learning processes. Internal documents from San Francisco Produce/Peninsula Organics could pinpoint the connections among farmers, organisational structures, the organic farming practices and the overall mission of the value chain.

Other methods could have been used in conducting the project. For example, participant observation and surveys. Participant observation is appropriate to understand the interactions among farmers in San Francisco Produce/Peninsula Organics. Especially when it comes to capturing *in situ* interactions. Although the first stages of learning already taken place, there is an ongoing learning process which makes participant observation possible. This implicates looking at interactions among farmers and the embeddedness there exists among them. However, the temporal aspects of the interactions did not work on my favour since they had already happened. It is an impossible task for me to have been there when farmers learned the basics of organic practices. Doing participant observation would have implicated spending much more time with every farmer in every firm I visited. This could have turned out as a cultural barrier given that farmers are people who need time to develop a relationship of trust to allow “strangers” to have access to

their daily activities. The limitations in time and financial resources only allowed the use of semi-structured interviews.

As for surveys, this method is more related to quantitative studies. Since I focus on narratives of farmers' learning process, in-depth semi structure interviews allow me to capture the sequences of the story and its meaningful elements. Surveys are useful if my interests were related to explaining and measuring the individual characteristics of the learning process.

2.4.2 Interview Schedule: The use of theory

In carrying out semi-structure interviews, I designed an interview schedule where the main topics would work as guidelines for me to construct a dynamic conversation with farmers. To design the interview schedule, I used literature relating to concepts and their elements I considered central to my project. These concepts are related to my conceptual framework, Technological Capability Development (Lall 1992; Kessing & Lall 1992; Lall 1993; Dutrénit 2004), Global Value Chains (Gereffi et al. 2005), Communities of Practice (Wenger, 1998, 2000, 2014) and Knowing in Action (Amin & Roberts 2008). The use of this typology is the result of lessons I learned from the pilot case, which are that firms develop production capabilities, they do not acquire them.

To reassure focus and information I structured the interview scheduled as a breaking set of questions format (see Table 5) The breaking set specifically begins with Sub-research Questions, which are based on the concepts of my conceptual framework. According to Lall's classification of Technological Capabilities, I identified production capabilities firms, and therefore farmers, and put them in another set. To elaborate on the focal points of analysis, I used

the conceptual elements of Communities of Practice of Wenger and Knowing in Action to grasp on the nature of the learning for developing production capabilities. As a result, the topics guided the conversations in line with the focal points of analysis, that is, the topics focused on types of knowledge, social interaction and organisational dynamics among firms of the same value chain.

Table 5. Interview Schedule Structure

Objectives	Research Questions	Sub-research Questions	Capabilities Identified	Focal points of analysis	Topics	Expected Information
1	1	Sub-Research Q 1.1	Capability 1	Type of knowledge	Topics were based on conceptual frameworks	Data that I should get based on the theory
		Sub-Research Q 2.1		Social interaction		
2	2	Sub-Research Q 1.2	Capability 2	Type of knowledge		
				Social interaction		
			Capability 3	Organisational dynamics		
				To receive information, skills and technology from Global Buyer and/or other producing firms		
		Sub-Research Q 2.2	To provide information, skills and technology to other firms and external producers			
			Mutual engagement			
	Joint Enterprise					
	Shared Repertoire					

Source: Fieldwork data 2014-2015

My decision to structure the interview schedule was also based on Arksey, H and Knight (1999, p. 40) who recommends that “an interviewer the better we know or understand an area, whether through sensitive reading or from our own experience, the better we can connect with the interviewee”. Therefore, knowing as much as possible of both, literature and the context of farmers were the grounds for my decision to structure the interview schedule this way.

2.4.3 Documents

Documentary evidence was used as a source of secondary data and as a strategy to validate information from interviewees. Blaikie (2010a, p.235) says that documents can be treated qualitatively to identify other relationships among the points of analysis. Table 6 presents the type of documents I collected from farmers, because of the rapport I developed throughout the fieldwork. I was able to collect copies of specific documents that could validate the information, specifically in the type of organisation.

Table 6. Documents collected from firms of SFP/PO.

Firm	Documents collected	Description
Firm 4 5, 9	Technical Plan Manual on pesticides Manual on fertilization Good agricultural practices Sanitation rules	It is a document in which the steps for cultural labour activities are described and the use of fertilisers and pesticides is explained. Also, sanitation rules and procedures are explained for the use of farmers as well as inspectors for verification.
Firm 2, 3, 4, 10	Foundation act	Describes the type of organisation and objectives as such.
Firm 4	Organic certification contract	Apart from describing the rules of getting certified, it helps explain how one certification embraces other firms.
Firm 4	Organic certificate	
Firm 4	Certification contract	Apart from describing the rules of getting certified, it helps explain how one certification embraces other firms
Firm 11	Commercialising contract between	Describes the rules on which the commercial relationship is based, specifically on the supply of inputs from the global buyer to farmer.
Firm 3	Internal Rules	Description of duties of every member of this firm
Firm 10	Methodology guidelines to constitute smalls groups	A methodology followed to constitute co-operatives focused to group of resource poor people.

Source: Fieldwork data 2014-2015

2.4.4 Data collection: Preparing and conducting Interviews

Prior to all interviews, I provided participant information sheets and informed consent to farmers. A brief leaflet was elaborated containing information on the research i.e. objectives, the focus of the research, and an explanation on why an interview was important. It explained the length of the interview, the topics that would and would not be covered i.e. money, financial statements and prices negotiated. The leaflet also explained the data handling and privacy issues and reassured every participant they could withdraw from the interview at any time. This leaflet was given to them in advance via email when the conditions allowed it. When this was not possible, I explained it verbally.

An *Informant consent* form was elaborated and given to participants, explaining to the interviewee that she or he voluntarily grants the interview that there are two choices: one to make explicit their names and the name of the firm and another where they could remain anonymous. The informant consent emphasised that both choices were equally acceptable. Due to the context of a rural area, I also conducted a *verbal presentation and clarification*. The reason for this is that researchers don't often carry out interviews in Mexico's rurality, quite often there is a cultural distance and unfamiliarity on the side of farmers to research. As part of rapport building process, I explained more about the project, making it clear I was not interested in financial information, prices, customers and the like. I explained that what I was really interested in their learning experience on how to grow new produce, obtaining certification, from whom they received the information, and what it was like for them to learn and be part of the group of farmers.

Finally, during data collection, I continued with a reflection process on my relationship with the object of study. The reflection process was an important part of data collection as it provided the “space” to stop and look at how I was doing it and use my judgement to make the necessary adjustments. I constantly did reasoning and abstraction from the case to avoid any bias as a result of data I received. As I was out in the field, I looked for examples of failure or disagreement in order to balance the perspective I was having as I interpreted or familiarised with the case.

Particularly, the geographical distances between farmers make communications between them very difficult. For it there is someone visiting them. Therefore for farmers to agree on similarities to portray a story towards a particular direction on purpose seemed, to my knowledge extremely difficult. The time between farms are about 3 or 4 hrs of driving. Additionally, these farmers have been involved in organic production since mid-1980. This time frame has provided enough evidence of what they do actually works and is not exempted from disagreements nor difficulties. In fact, as I introduced myself as a research student, this provided the space for farmers to fully develop their narrative, which provided perspectives of being conformed to the value chain, in some instances, but they too brought up issues that indicate that there are issues to resolve, in some other instances. Therefore, being a research myself allowed the rapport for farmers to express themselves and provide the freedom to inform according to their own verbal abilities and experience as producers of SFP/PO.

Additionally, I constantly revised the topics of the interview schedule and undertaking analysis of interview transcripts between interviews. My reflection on revision of topics and in-between analysis of transcripts were

discussed on monthly scheduled meetings with my supervisors via skype. This reflection process allowed constructive criticism of *the suitability of the framework, the topics of the interview schedule, and the information I obtained*. This constant reflection proved to be very useful when conducting the pilot case which ultimately helped me redesign my research.

2.5 Data analysis

The *Framework Approach (FA)* was used for data analysis (Spencer et al. 2014; Smith & Frith 2011) When using CS Yin (1994a) suggests to have an analytical strategy given that there is no defined technique for qualitative data analysis. In my project, as qualitative data derives from interviews and documents, Bryman(2004,2015), says that qualitative data takes the form of a large corpus of unstructured textual material and because of that there is no straightforward way for analysis.

According to Maggs-Rapport (2001) the possibilities FA offers are 1) ensures that qualitative studies are methodologically robust, ii) provides transparency in relation to the analytical process employed to enable readers to critically apprise the study's findings. The FA consist of 5 steps (Familiarisation, Indexing, data charting, summarising abstraction and interpretation) that systematically take the novice researcher into the analysis. To start, I applied the FA approach having a strong sense of ownership of my data. By ownership of data I mean to have a mental map and understanding of what my data was telling me. I achieved familiarisation with data in two stages. First, by transcribing 59 interviews in total, out of which 50 correspond to my CS. The entire transcription process took 6 months given an average length of 1 and half hours of conversation, some of the lasted up to 2 hours. And secondly,

during the time of transcriptions I read all interviews and then used Nvivo software to create labels (indexing) and have a manageable way of looking at the data.

The next stage then consisted of transforming the labels into codes, according to concepts of literature such as Communities of Practice, and the typology of Knowing in Action. Additionally, one more label emerged given the frequency with which farmers verbally expressed it in their accounts. I named this label Social Purpose. What followed was to create links among the accounts. The links correspond to explicit accounts if the case is such, or an implicit account when there is no clear statement.

By using the FA, I organised my analysis to the systematic requirements of this method. It provided me with the possibility to trace the interconnectedness stages and links between accounts to explain and construct a thorough account of the case. FA enables the description of a analysis from initial management of data through to the development of descriptive to explanatory accounts (Smith & Frith 2011, p.55).

2.6 Ethical Considerations

Before the beginning of data collection, I conducted the University of Edinburgh's ethical self-audit. The review showed that the research design discussed here did not pose any cultural, physical or psychological risks to participants, especially with the focus of the schedule interview on aspects such as personal interactions. Therefore, the following statement was made:

I confirm that I have carried out the school ethics self-audit in relation to my proposed research "GLOBAL

VALUE CHAINS (GVC) AND SOCIAL LEARNING. DEVELOPING PRODUCER CAPABILITIES IN SMALLHOLDER FARMERS. THE CASE OF SAN FRANCISCO PRODUCE/PENINSULA ORGANICS (SFP/PO)", and that no reasonably foreseeable ethical risks have been identified.

Although I was aware that topics of the interview schedule were not entirely separated from the perspectives of farmers, they were based on their tasks as farmers and not on their personal lives. The only safeguards taken into consideration were those related to farmers' income. If, by any chance, comments on income were brought up, I would simply listen to them and would guide the conversation back to interview schedule.

2.6.1 Handling of data created and Anonymity

To uphold the agreement between the farmers and myself, I took a series of steps to ensure that the data was handled in accordance with The University of Edinburgh data management guidelines. All interviews were recorded using a MP3 format recorder. These audio recordings were stored on password protected computer. The subsequent transcriptions of the interviews were also stored in a computer with passwords. As this data was only handled by me and for ease of handling, I kept the identifying personal details of participants in the transcription. The transcriptions of interviews and access to audio recordings were all handled by myself.

Before beginning any interview, a brief introduction was held with interviewees about the project, and whether they wished for their names,

identity and/or any of the information regarding firms they worked for and the relationships with other firms to be public or changed or kept anonymous. The introduction was supported by two documents (1) consent form and (2) leaflet¹³. By the time all interviews were concluded, the majority had stated they would prefer to be anonymized, leaving a minority that agreed on their names and firms to be mentioned in publications, conferences and lectures. This presented difficulties when explaining the findings given that a considerable number of interviewees did not want to be mentioned. One of the possible issues I could face was that although pseudonyms and real names could be used, there could be some association between individuals. To solve this issue, complete anonymity was adopted and thus consistency would prevail. Therefore, all personal names, professions and names of firms would be changed in quotes. An additional measure was taken in this thesis, codes would be used to cover even the origin and or place where the interview was held.

2.7 Summary

In this chapter, I have explained the qualitative nature of *research designed, methods, data collection and analysis*. I stated the research problem of how farmers developed production capabilities in Global Value Chains and comply with the requirements of Global Buyers in the context of a Global Value Chains that integrates unskilled smallholder farmers into organic agricultural production. My *critical realists* ontological and epistemological positions were explained, which reflected the logic for obtaining the insights of farmers as knowledge. To understand the development of production capabilities, I

¹³ See appendix 2 for The leaflet.

opted for a *Case Study* strategy since it suits the critical realist worldview, its holistic perspective and flexibility in terms of the number of farmers involved in San Francisco Produce/Peninsula Organics.

San Francisco Produce/Peninsula Organics case study was selected from a list of firms based on a systematic *sampling* approach and snowball strategy. Data was collected using *semi-structured* interviews guided by an *interview schedule* based on conceptual framework, with supporting *documents*. The data collection process was carried out by providing interviewees with a leaflet and obtaining informed consent. Their rights, the purpose of the research, and the handling of data were explained. Data collection was carried out in accordance with The UoE *ethical considerations*. *Data analysis* was carried out using NVIVO software and the framework approach, to have a systematic way of looking at data for labelling and codification. Finally, data handling upheld the agreement with farmers ensuring confidentiality of personal information as well as recordings and transcriptions of interviews.

In the following chapter, Literature Review, I will examine the contributions on global production of agriculture in relation with topics such as production capability development, how they have been investigated in the past three decades, and how my research project fits into this body of literature.

Chapter 3: Literature Review

3.1 Introduction

For the past three decades, scholars have contributed to our understanding of globalisation of agricultural production. The seminal work of Gereffi & Korzeniewicz (1994) with Global Commodity Chain (GCC) and Gereffi et al. (2005) with Global Value Chain (GVC) has covered issues of dispersion of production, access to technological knowledge, learning, innovation and their implications for transforming agriculture across developing countries. Ernst & Kim (2002), Henderson et al. (2002) and Coe et al. (2008) coined the term Global Production Networks (GPN) to look at the nexus between global production, technology transfer and its social implications in producing countries, such as wealth distribution and competitive advantages. The explanatory power of GCC, GVC and GPN concepts has driven different research agendas, shedding light on understanding issues of international trade, development and economic growth that have explained an effect on productivity, technology and knowledge diffusion (Pietrobelli & Saliola 2008).

In this chapter I examine contributions to global production of agriculture, together with topics such as production capability development, how they have been investigated in the past three decades, and how my research project fits into this body of literature. I present my critical perspective on global production and the creation of value in agriculture by examining studies on Global Value Chains. Particularly, I highlight my understanding on empirical findings that advance discussion on global production. Concretely, I focus on discussions that consider social elements such as environmental concerns,

entry barriers in target markets, Corporate Social Responsibility (CSR), concentration on a few large farmers and exclusion of smallholder farmers.

A new narrative is emerging around discussion of global agricultural production, one that is more focused on social aspects of global production. My argument is that there is a need for more empirical data to shed light on social aspects in Global Value Chains, such as inclusion of smallholder farmers in global agricultural production, teaching and learning for production capability development and innovation. This discussion questions the purpose of global production and suggests the analysis should shift away from production alone. First, I discuss the concepts used to analyse global production, the works that shed light on production and value generation, and the need to distinguish production from value creation. Second, I examine literature on agricultural value chains with regards to opportunities and challenges for smallholder farmers in developing countries. Third, I discuss works on technological learning and capability building for smallholder farmers in Global Value Chains. And finally, I present a summary, shedding light on my critical understanding of contributions to global production in agriculture, how this project fits in global production and how the argument of this project further contributes in light of the discussion on Global Value Chains.

3.2 Globalisation of production: Three concepts

There is extensive research that explains the relationship of globalisation and fragmentation of production on a world scale. Gereffi et al. (1994) stated that the world had become a global “factory” due to the capacity of global actors like corporations, Transnational and Multinational Firms, to disperse

production through their linkages among firms located in peripheral, mainly developing countries and core nations, mostly developed countries, which represent a cost advantage. Three theoretical concepts have explained global production and its relationship with suppliers in developing countries and global buyers in high-income countries.

Terence K. Hopkins & Wallerstein (1986) referred to Commodity Chains (CC), in which they highlight a network of labour and production processes around a finished commodity. Korzeniewicz & Martin (1994) incorporated the global aspect to CC, resulting in Global Commodity Chain (GCC) “consisting of sets of inter-organisational networks clustered around one commodity or product, linking household, enterprises, and the states to one another within the world-economy. Within the global aspect, these networks are situationally specific, socially constructed and locally integrated, underscoring the social embeddedness of economic organisation” (Gereffi et al. 1994).

However, I see limitations in how far studies of GCC can be taken. GCC acknowledge the global context in which production evolved. In my view, a weakness within these studies is that they are anchored only around the perspective of commodity production. Although GCC considers social embeddedness, it is not upfront in the analytical perspective, which consequently overlooks other complexities beyond the economic realm.

Many scholars contributed to the discussion of global production and argued that GCC does not capture certain complexities of globalisation of production. For example, Ernst & Kim (2002) argued that complexities such as *trade liberalisation*, rapid development and diffusion of *information and communication technology (IT)* and, *competition* have played a role in

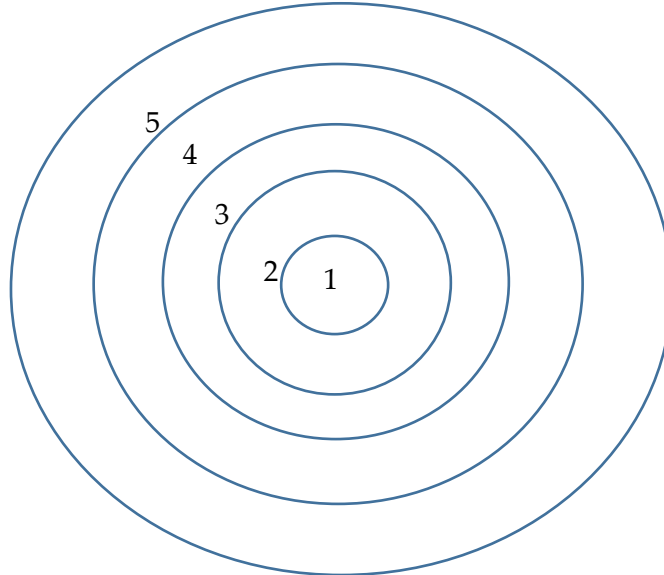
restructuring global production, the integration of suppliers, knowledge and customers (Ernst & Kim 2002; Rabach & Mee Kim 1994; Lee & Cason 1994; Gereffi 1994; Goldfrank 1994, Harris, (1987), Gereffi, (1989) in Gereffi (1994)). Ernst & Kim (2002), Henderson et al. (2002) and Coe et al. (2008) pointed out that GCC has been concerned with the notion of the chain. Studies on Global Production Networks (GPN) consider the nature and history of the reconstruction of the chains¹⁴ and the institutional frameworks of regions where production is allocated. They highlighted that the nationality of the firm, and its connections with the region, might be a major factor for their economic strategies and social development. (Coe et al. 2004).

The literature on GPN and GCC suggest that the most efficient strategy of lead firms to generate value is to locate production stage in periphery and semi-periphery nations mainly developing countries characterised by low wages. To better underpin the idea of value generation, particularly in agriculture, studies focused on three factors: (i) organisational flexibility, (ii) labour intensive and (iii) low wages dependency.

Figure 3 illustrates *Organisation flexibility (i)*. In agriculture production, the lead is taken by giants and small firms located in developed countries, where the high-value activities take place. These activities are branding, marketing and distribution. This is represented by circle 1, or core countries dedicated to marketing activities. However, crop production takes place in the periphery, represented by number 2 and 3, and semi-periphery represented by numbers 4 and 5. Consequently, due to international competitiveness, lead firms implement strategies related to global sourcing to generate value from

periphery and semi-periphery countries taking advantage of low wages for labour intensive activities.

Figure 3. Illustration of core, periphery and semi-periphery nations



Source: Gereffi (1994) Production Frontiers for Global Sourcing by US Retailers: The apparel Industry. 1: Italy, France, UK, Japan., 2: South Korea, Taiwan, Hong Kong, Singapore, 3: Malaysia, China, India, Mexico, Brazil, 4: Central America, Eastern Europe, Pakistan, 5: Peru, Qatar, Vietnam, among others

In the study of Gereffi & Korzeniewicz (1994), they identified labour intensive activities (ii) in three industries: clothing, auto parts and agriculture (Gereffi 1994; Lee & Cason 1994). In the former the contribution, Goldfrank (1994) stated that labour intensive activities like labour supply, crop production and transportation were relocated in the periphery and semi-periphery countries. Regardless of the industry, these studies suggest that such global production depends on the contribution of low wages in developing countries. For example, Lee & Cason (1994) argued that South Korean state policies attracted the automobile industry that gave an advantage for their cost competitiveness based on institutional, market conditions and cheap labour force” (p.231). Mexico also illustrates the advantage of state policies by changing

employment policy and collective contracts, as well as the reorganisation of union affiliations and the weakening of union power (passim 233-234).

On the other hand, Friedman, (2005) in Levy (2008), stated that Brazil set up fiscal benefit programmes and obstruction to foreign exchange as well as higher duties on imports of firms (p.235). Emerging economies like China and India, have created significant regional advantages based, not only on low costs, but also on technical expertise for growing firm capabilities

In my view, these factors created a reconfiguration of global production where Gereff et al. (2001,2005) identified this change and called for a reinterpretation of global production. Gereffi argued that the world went into a new phase of market integration. Multinational Firms reshaped their structure and went into (dis)integration in the form of outsourcing, a share of their non-core manufacturing and service activities both domestically and abroad. Perhaps the most clarifying aspect of this reshaping consisted of transferring “non-core” functions such as generic services and volume production to other firms, whilst keeping *core* value-added functions such as innovation and product strategy and marketing.

Consequently, the concept of GVC was coined to describe on the full range of activities that firms, and workers, do to bring a product or service from its conception to its end. This includes activities such as design, production, marketing, distribution and support to the final consumer. The activities can be contained within a single firm, or divided among different firms within one geographical location, or spread over wider areas (Global Value Chains Initiative 2014). In the context of agriculture, Agricultural Value Chains are non-bulk agricultural commodities that require special handling, such as

fresh, fruits and vegetables, or are processed in one or more post-harvest stages, such as specialty produce. These products tend to be significantly more labour intensive (Bamber & Fernandez-stark 2014).

The concepts of GCC, GPN and GVC have useful analytical categories. The body of literature of these concepts has contributed to the understanding of organisation of global production. The studies have thrown light on the drivers of allocation of production, focused on value generation and mainly driven by low wages. GCC studies mainly explain the allocation of production from the perspective of large firms. Studies on GPN consider the origin of the lead firm institutional arrangements of regions. Moreover, studies on GVC focus on outsourcing by distinguishing between added value [core activities] and or low value [non-core] activities. Despite their similarities and differences, from my perspective, a main weakness in these studies (GCC, GPN and GVC) is that the globalisation of production is not only about value generation, in economic terms, but should consider value creation from activities and contributions to the periphery and semi-periphery countries (Gomez & Goldfrank 1991; Cook 1990; Ernst & Kim 2002; Coe et al. 2004)

This PhD study is placed within the strand of literature of GVC. It acknowledges global operations have proliferated as an effective organisational innovation, acting as catalyst and providers of international knowledge, and in some cases in new opportunities for local capability formation in lower-cost locations (Borras et al. 2000; Chandler & Cortada 2000; Ernst 2002; Ernst & Kim 2002)

3.3 GVC Governance: Opportunities and challenges for smallholder farmers

Governance mechanisms are central in the relationship between core and peripheral countries. This is especially clear when it comes to the outsourced production of fresh vegetables for export in Latin American countries. Governance mechanisms set the rules for decisions related to what and how agricultural produce should be produced. These mechanisms determine the directionality of the authority and power relationships to control and coordinate exchanges of capital, technology, standards, and brands—between buyers and suppliers (Gereffi & Korzeniewicz, 1994, Gereffi 1994 ; Dolan & Humphrey 2000; Barrett et al. 2002; Dolan & Humphrey 2004; Gereffi et al. 2009).

What do we know about governance? To begin with, in a value chain, power is exercised by an actor that determines the activities of other actors in the chain (Gereffi et al., 2001; Humphrey and Schmitz, 2000). The first distinction of governance was drawn by Gereffi (1994, 1999) between *producer-driven* (PD), characterised by large manufacturers with control over production process and direct ownership, and *buyer-driven* (BD) which is characterised by retailers and brand marketers, with control over international sourcing networks from offshore suppliers.

Literature on GVC has made the dynamic process of governance explicit. For example, part of this dynamism is explained by actors such as consumers, retailers and importers. Also factors such as increasing competition, implementation of high-quality systems, sharp delivery times, product variety, food safety certification and innovation, reshape governance and

affecting the power relationship with suppliers in developing countries. In particular, the most interesting contribution explaining dynamism in governance is the work of Dolan & Humphrey (2000), which pointed out that actors such as global buyers have created closer relations with suppliers. Global Buyers exert more control and coordination in dispersed activities. However, in this coordination, knowledge and information transfers have come into play as response to factors such as increasing competition.

Throwing light on the dynamic process of governance, Dolan et al. 1999 (in Barrett et al. 2002) stressed the increasing interest of retailers in organic markets. As a result, organic certification proved to be central to network governance, shaping product specifications, production parameters, and participation by enterprises. Raynolds (2004) further points out that retailers are increasingly interested in organic production, distribution, and consumption patterns. Predominantly, retailers are focussed on how social, political, and economic actors reshape international trade and ultimately governance.

Furthermore, the work of Gibbon (2003) sheds light on the influence of consumer concerns about food safety and environmental care which has opened the need for more coordination with suppliers. Specification and enforcement of food safety parameters relating to product and production processes have become crucial to ensure that products and processes meet the standards required of export markets. Hatanaka et al. (2005) highlighted how third-party certification (TPC) is transforming governance in global agricultural production system. For governance, third-party certifications emerged as a significant regulatory mechanism in the global agri-food system,

reflecting the development of new regulatory and verification mechanisms for the safety and quality of food.

A contribution of GVC literature is that agricultural production is complex. The governance mechanism in agricultural production reflects the dynamism, shedding light on asymmetrical power relationship between global buyers and suppliers. For example, certification ensures that firms which participate in Global Value Chain comply with international standards, which work as a reassurance for Global Buyer that their standards are complied with.

Gereffi et al (2005) developed another typology for governance. One of the main contributions of this typology is that it places suppliers as the actors that should be able to respond to the complexities of production, mainly the requirements of global buyers, reflecting this asymmetry power relationship between global buyers and suppliers. The typology is based on three attributes: a) complexity of transactions b) ability to codify transactions and c) capabilities of suppliers. Concretely, the typology reflects suppliers' ability "to make requirements happen" for their buyers (Ibid). Based on this, Table 7 shows the 5 categories of governance. Markets (coordination by price) and hierarchies (coordination through ownership, also known as vertical integration) constitute the end points of the governance continuum, along with 3 types of networks that involve increasingly explicit forms of coordination—these are modular, relational, and captive networks.

Governance mechanisms are central in global production. From control over production processes by large producers, to control over sourcing networks offshore by buyers, our understanding has advanced. Actors and factors have played a role in reshaping governance. Actors such as global buyers, suppliers

and consumers respond to factors such as increasing competition, interests and concerns. As a result, relationships are reshaped where new features emerge e.g. information and knowledge transfer between global buyers and suppliers or third-party certifications. These actors and factors continuously reflect the dynamism of global production governance.

Table 7. Governance of GVC

Type	Markets	Modular value chains	Relational value chains	Captive value chains	Hierarchy
Description	Market linkages do not have to be completely transitory, as is typical of spot markets; they can persist over time, with repeat transactions. The essential point is that the costs of switching to new partners are low for both parties.	Typically, suppliers make products to a customer's specifications, which may be more or less detailed.	In these networks there is a complex interaction between buyers and sellers, which often creates mutual dependence and high levels of asset specificity, namely managed through reputation, or family and ethnic ties. In the cases of spatially dispersed networks, trust and reputation or dispersed family and social groups are the bases of the network.	In these networks, small suppliers are transactionally dependent on much larger buyers. Suppliers face significant switching costs and are, therefore, 'captive'. Such networks are frequently characterized by a high degree of monitoring and control by lead firms	This form is characterized by vertical integration. The dominant form of governance is managerial control, flowing from managers to subordinates, or from headquarters to subsidiaries and affiliates

Source: Gereffi et al. (2005)

Contributions from other scholars have further complemented our understanding in this regard; highlighting the role of suppliers to respond to global buyers' requirements. The power relationships are affected by attributes such: complexity of transactions, ability to codify transactions and capabilities of suppliers, placing the spotlight on suppliers and underscoring their capability to meet the requirements from global buyers. In agricultural value chains, governance has an open discussion as to how beneficial it is for suppliers to participate in GVC, that is opportunities and challenges for farmers, especially, smallholder farmers.

3.3.1 Opportunities in globalisation of production

Literature on Global Value Chains has shown light on opportunities for suppliers. Some scholars have argued that one of the major opportunities in GVC is upgrading. Typically, upgrading is divided into four: inter-sectoral, functional, process and product (Humphrey and Schmitz, 2002a; Kaplinsky et al., 2003 in Moyer-lee & Prowse (2015). In the context of agricultural value chains, upgrading means that suppliers are capable of using knowledge for moving to higher value activities such as modern farming techniques, access to finance and improving their capabilities to meet the strict quality, sanitary and phytosanitary (SPS) standards of global markets (Fernandez-Stark et al., 2011b, Navas-Alemán et al. 2012). The importance of upgrading relies on its impact on economic development and job creation in the global economy (Cattaneo et al. 2013; Gereffi & Lee (2016). Gibbon (2001) addressed the question of how smallholder farmers in developing countries could *upgrade*.

In upgrading opportunities, the role actors such as Global Buyers or Transnational companies play in the chain is a determinant factor regarding

participating firms being able to take advantage of their participation, and thus upgrade. Ernst & Kim (2002) analyse the role of transnational corporations in transferring explicit and tacit knowledge to local suppliers. They highlight this as a necessary condition for local suppliers to upgrade their technical [process upgrading] and managerial skills [functional upgrading], so they can meet the Global Buyer specifications. In agricultural value chains, for example, Hughes (2000) in his study of cut flower commodity chain found that knowledge flows from retailers downstream could generate product and process upgrading and shape the entire chain with the introduction of new product designs providing product, process and functional upgrading opportunities for smallholder farmers.

Although agricultural global production fosters channels to convey knowledge in developing countries, in my critical perspective, there are two important points regarding upgrading opportunities. For example, the work of Gibbon (2001) argues that international traders [lead firms] determine whether producers in developing countries will upgrade and to what extent. His work highlights a purpose which reshapes the relationship between global buyers and suppliers toward upgrading in processes and products.

In addition, the work of Morgan & Murdoch (2000) showed that lead firms, indeed, differ in their purpose for stimulating knowledge flows, reflecting the purpose of global buyers toward upgrading their suppliers and the extent to which they are upgraded. They analysed two agricultural value chains, organic and conventional respectively. They stressed how conventional food chain distributed knowledge towards input suppliers, showing the purpose for suppliers to upgrade the use of inputs, whereas organic food chains distributed knowledge back towards farmers and into production processes

with the intention that such knowledge would be toward improved understanding of the production process.

As well as the role of lead firms in upgrading opportunities, Humphrey & Schmitz (2002) placed suppliers as active actors in taking advantage of upgrading opportunities. They found that, depending on the type of governance, suppliers can take advantage of upgrading opportunities, stating that suppliers need strategic intent and substantial investments. For example, quasi-hierarchical governance allows fast upgrading for local suppliers in the sphere of production, however due to lack of information and financial resources, suppliers find it difficult to move into higher value activities. Quasi-hierarchical governance enables suppliers to either carry out activities that global buyers have relinquished, or to carry out design and branding activities in local and regional markets with the information and financial resources to be able to develop the capabilities for market penetration.

In the work of Giuliani et al. (2005), the importance of creating external linkages to achieve upgrading was emphasised. They argue that the way external linkages are organised has implications for process, product and functional upgrading. This is consistent with Poulton et al. (2010) who suggest that linkages among smallholder farmers would significantly facilitate access to a range of resources and services—purchased farm inputs, seasonal and medium-/long-term finance, information and skills (for technology, market, and business activities), and output markets, arguing that they are critical for survival in increasingly competitive agri-food markets. Likewise, Lutz (2012) states that smallholders can join forces together through social networks so that they can reduce the disadvantages of smallness and share resources.

Apart from the role of lead firms and the active role of suppliers, in regards to other governance mechanisms, Hatanaka et al. (2005) suggested that third party certifications are opportunities for farmers to develop new practices that are more socially and environmentally sustainable. They argued that producers which are third-party certified, might stand to gain economic opportunities in the marketplace since they can demonstrate to other stakeholders in VC a commitment to more rigorous standards for their products, granting access to new and potentially more profitable markets.

Although opportunities for smallholder farmers for upgrading have been discussed, Selwyn (2008) insisted that attention should be paid to the interactions with other actors outside of the VC, for example between farmers' organisations and State development agencies in facilitating systematic upgrading for a large number of producers. He argues that state financial support for infrastructure is a prerequisite for exporting along with producers' organisations who play a key role in forging export marketing channels. Likewise, Lee et al. (2012) placed emphasis on collective arrangements for smallholder farmers to comply with agri-food standards. Their argument is that retailers and especially intermediaries play a big role in the implementation of the agri-food standards by farmers along with institutional support, that is, through local agencies.

3.3.2 Challenges in globalisation of production

Literature on GVC has also broadened our understanding of agricultural global production, particularly the challenges for suppliers. Gibbon (2001) argued that in high-income markets, entry barriers result in fewer learning opportunities for suppliers in the peripheral countries. On the one hand,

suppliers require ever more complex information about changing market requirements, as well as assistance for meeting changing product specifications. On the other, the risks to the global buyer from delayed deliveries and poor quality products are considerable (Dolan & Humphrey 2000).

To reduce risks, Fold (2002) have documented that lead firm strategy should consist of creating competition amongst farmers to improve their positions in the global market. This type of strategy raises concerns about the future prospect of smallholder production. Daviron & Gibbon (2002) argued changes in consumption patterns have affected the production of tropical agricultural products. In their analysis of the cocoa and coffee value chain, they identified marginalisation of smallholders in the production of export crops. Production is likely to be concentrated amongst a smaller number of large farmers, those considered capable of complying with requirements of: a) new quality conventions and b) technological change and production differentiation for common and sophisticated practices of cultivation and processing.

Barrett et al. (2002) highlighted the obstacles for smallholder farmers in developing countries to gain organic certification. Amongst them are inspection costs, inputs and access to organic practices. Inspections fees can be high given that inspectors are not from their home countries, inputs are expensive and not readily available, and knowledgeable people in organic practices are not available locally. Gómez Tovar et al. (2005) also argued that organic certification encompasses increasing bureaucratic requirements that ultimately privilege large farmers. This is consistent with Garcia Martinez & Bañados (2004) study of Chilean organic farmers who are under increasing

pressure to comply with consumer demands, and thus a concentration of large high capable farmers which has risen as a result of pressure for compliance.

Another illustrative example of the tendency towards concentration of large farmers is the Kenyan fresh vegetable commodity chain. According to Humphrey et al. (2004), larger exporters have contracts with medium-sized farms, while other exporters purchased vegetables through spot markets in rural areas. Dolan (2004) identified that as competitive pressures arise, so does flexibility of labour conditions in horticultural production. The tendency towards concentration has raised questions about how the benefits of trade can be diffused to broader segments of the population, particularly smallholder farmers, who are being displaced from the chain by proclivity toward large farm production.

Vieira & Traill (2007) in their study, although focused on Brazilian beef industry, revealed that producers have little choice but to adapt to market changes as standards evolve. Still, the costs of compliance with meeting international food standards reduces Brazil's comparative advantage. This study is aligned with Dolan and Humphrey (2000), who identified the role of the retailer as focused on more capable producer and enforcing strict standards to be adopted by emerging countries.

Finally, another challenge for smallholders is innovation. Fold & Gough (2008) explored the pineapple value chain in Ghana, the introduction of a developed variety (MD2), and the subsequent impact on the livelihoods of small pineapple farmers. They showed that smallholder farmers had been affected as transnational companies have entered the market. Production has been transferred into the hands of large commercial firms that have the capital to

invest in product development to offer and respond to consumer preferences. Vagneron et al. (2009) explained that in the Ghana pineapple sector, although varietal innovation plays a key role, commercial and logistical innovation are of real strategic importance, increasing the risk of smallholder farmers being excluded or marginalised.

Despite the challenging scenario for smallholders in developing countries, some studies have advocated inclusive approaches based on alternative modes of coordination (vertical, horizontal, complementary, and focal) to overcoming problems related to smallholder farmers. Moyer-lee & Prowse (2015) proposed to investigate further the role of producer organisations in balancing relations between firms and farms since they could create economies of scale, reduce transaction costs and provide better market information. Although from a firm's perspective, the costs of screening, contracting, supplying, supervising and paying a dispersed population of smallholders are much higher than working with large farms. In Global Value Chains, global production needs to move beyond considering production, given the challenges imposed on smallholder farmers.

3.4 Moving away from production: addressing Social aspects in Global Value Chains

The major shortcomings in these studies reviewed are that they look at global agriculture through the lenses of production. Particularly, their focus has been on governance, the coordination mechanisms to carry out added value activities. Authors such as (Dolan & Tewari 2001; Challies 2008; Schumacher 2014) point out that there should be a new direction in the understanding of global agriculture. In line with this argument, Challies (2008) argues that GVC

should emphasise the role of people and the places where CVCs touchdown. They argue that if value chain studies are to effectively grasp the complexities of contemporary agri-food globalisation and its challenges for local social and economic development, they must consider rural livelihoods.

To advance our understanding of agricultural value chains, I argue that studies in Global Value Chains must consider social aspects of globalisation of production, where the production of commodity is the means toward the inclusion of smallholders, the enhancement of learning for production capability development and innovation. The same factors that drive GVC, such as competition, product differentiation and consumers' concerns, are paving the way for changing the conventional way of analysing global production. There appears to be an increasing interest by lead firms in the social aspects regarding developing countries.

In high-value agriculture for example, the works of Danse & Vellema (2007), Weinberger & Lumpkin (2007) in Organization (2016) indicate that high-value agriculture has important repercussions for poverty alleviation in rural areas of developing countries due to its potential to increase incomes and create employment. These studies suggest that global agriculture has yielded important economic and social outcomes for smallholder farmers in developing countries. Ger (1999) suggests that it is precisely smallholder farmers in developing countries who are best-suited to provide the 'rare', the 'unspoiled', the 'natural', the 'unique', the 'exotic' or the 'unusual', which are in demand in high-income countries.

Studies in Corporate Social Responsibility (CSR) also pave the way for understanding Global Value Chain beyond production relationship. Barrientos & Smith (2007) suggest that despite tensions, codes operated by

companies in the UK Ethical Trading Initiative have led to improvements in outcome standards. However, much of the research up to now has not clearly explained whether CSR has made any real difference to worker's rights, existing commercial practices, or embedded social relations.

Blowfield & Dolan (2010) explored the experiences of producers of Fairtrade tea in Kenya, in which they reveal the complex nature of what constitutes a beneficial outcome for the poor and marginalised, and the gap that exists between ethical intentions and the experience of their intended beneficiaries. Although codes for better working conditions and benefits for workers have been implemented, Barrientos et al. (2011: 320 in Selwyn (2013)) argue there is still a lack of understanding as to whether retailers, importers or any other leader in the VC might ever take a stand in which the purpose of the whole production chain, is to improve the position of supplier and global buyers, and developing of mutually beneficial processes and outcomes. Also, Gereffi & Lee (2016) state that GVC have improved both economic and social conditions for workers and communities linked to GVCs, and it has attracted considerable attention from researchers, policy makers, and donor communities. One of the concerns in GVCs that sheds light on one particular concern is that of gender relations. Schumacher's (2014) analysis provides a broader approach to gender relations, arguing that a gender-sensitive global value chain approach offers insights on the role of agents and individuals.

Pelupessy & van Kempen (2005) argue that traders and processors could play a role in enabling smallholder access to wealthy consumers by facilitating linkages and offering farmers market intelligence on the criteria to meet the requirements of final consumers. This argument is important when referring to Selwyn (2008) who advocates for a collective effort amongst farmers and

State organisations, highlighting that purposive interactions among them are crucial for achieving successful upgrading. For example when it comes to the implementation of organic practices and certification González & Nigh (2005) explained that purpose interactions among smallholders and Non-government organisations are key for the technological transition.

Ouma (2015) states that agri-food projects can indeed gear towards ideas of value chain development, that is inclusive markets, poverty reduction, empowerment and community development. He argues that markets themselves, can be configured differently and that each configuration can be designed to respond to specific orientation and requirements, other than the production relationship in value chains. For example, Lee & Gereffi (2015) pointed out that dynamics in GVCs underscore the important and complex role of GVCs in shaping economic and social outcomes in emerging economies. As production is being concentrated in global south, Gereffi & Lee (2016) recently pointed that lead firms have been under growing pressure to link economic and social upgrading in more integrated forms of Corporate Social Responsibility (CSR). Specifically, improving working conditions and the inclusion of smallholders.

To my knowledge, there is limited evidence in the literature on the links between GVCs and the social aspects of agriculture. In this regard, it should be considered the social aspects of the value chain as whole. The San Francisco Produce Produce/Peninsula Organics (SFP/PO) is a GVC that has transformed unskilled smallholder farmers into skilled, export-oriented farmers, capable of sophisticated production techniques and quality control. Therefore, it provides an opportunity to examine in depth the processes of these transformations and is the focus of this PhD. Consequently, this study has as

first objective: i) to examining the social purpose of San Francisco Produce/Peninsula Organics as value chain. Specifically, the SFP/PO GVC provides evidence of a case where there appears to be a more symmetrical relationship between the global buyer and the farmers, which accordingly creates mechanism for supporting smallholder farmers in meeting market requirements.

Of course farmers must have high capability levels to remain competitive if they want to remain part of a Global Value Chain, however, in many cases farmers have limited knowledge and competence (Dolan & Humphrey 2000; FAO, 2001; Gibbon 2003). This case also sheds light on how successful smallholder agricultural operations can overcome aspects of poor economies of scale, lack of access to capital, weak knowledge of agricultural techniques and markets and poor levels of coordination (Fernandez-Stark & Bamber, 2012 in Bamber et al. (2016)). Although farmers may be able to benefit from participating in agricultural GVC, it should not be assumed that simple participation will result in an automatic virtuous circle.

3.4.1 Collective action, cooperation in global production

Some scholars merge GVC and Technological Capabilities (TC) (Dolan & Humphrey 2000; Humphrey & Schmitz 2001; Gereffi et al. 2005 Morrison et al. 2008). The arguments are that Technological Capabilities are central in Global Value Chains because Technological Capabilities shape the type of governance among suppliers and buyers. Global Value Chains and Technological Capabilities certainly gain importance within the logic of production, as the central focus of our understanding of globalisation of production. Taking the argument further, that research on GVCs is mainly focused on production, this shortcoming also undermines our understanding of how agricultural value

chains and specifically farmers develop Technological Capabilities - and in particular, production capabilities. The literature on Technological Capabilities highlight the importance of learning for capability development and stress how fundamental learning is for upgrading and innovation.

However, within the context of agriculture, farmers appear to work under purposeful interactions, that is collaborative actions and cooperation between them, especially amongst smallholders with low capabilities. These collaborative actions and cooperation appear to characterise their learning. For example, taking the case of smallholder organic agriculture in Mexico, Requier-Desjardins et al. (2003) analysed that smallholder farmers located in remote areas, need to embrace collective action to enhance their competence in areas such as production and quality control. Under the context of problematic appropriation of productive process, organic smallholders in Mexico worked around the idea of learning the organic process, creating social learning and building social capital of collective¹⁵ enterprises such as co-operatives.

González & Nigh (2005) highlight that one of the key characteristics of the Mexican organic farmer cooperatives has been the novel approach to the certification of organised smallholder farmers through the establishment of Internal Control Systems (Gomez Cruz, 2004; Devaux et al. 2009). The challenge of documenting and monitoring the implementation of the organic technical itinerary of cooperative members has contributed to fortifying and

¹⁵ Collective action refers to voluntary action taken by a group to pursue common interests or achieve common objectives. In collective action, members may act on their own, but more commonly they act through a group or an organization; they may act independently or with the encouragement or support of external agents from governmental bodies, non-governmental organizations (NGOs) or development projects (Devaux et al. 2009)

consolidating indigenous associative corporations. Non-Governmental Organisations have played a key role as advisors in helping farmer co-operatives achieve certification and enter the export market. Adapting to the requirements of certification has had important impacts on the internal functioning and structure of the smallholder cooperatives in Mexico.

Leitgeb et al. (2011) in their study of the role of farmers' experiments and innovations in Cuba, suggested that social participation in knowledge development provides the basic prerequisite for an effective integration of farmers' experiments with more horizontal dynamics. These dynamics allow the exchange of ideas at all kinds of interactive meetings, such as workshops or farmers' field schools, have favoured farmer to farmer learning as well as knowledge sharing with research, academic and extension officials.

These studies show that purposeful interactions can lead to collective action among farmers. However, there appears to be no research on the impact of collective learning in a GVC. In line with this argument, this PhD study has a *second objective: ii) to understand how farmers participating in SFP/PO learn to develop production capabilities*. SFP/PO as a GVC with a social purpose can shed light on collective actions that forge a learning environment which enhances the learning of production skills of farmers, so that they meet the demands of high-income countries. Therefore, I formulated the following research, *how do farmer display competence in the community of farmers of San Francisco Produce/Peninsula Organcis?*

This question of displaying competence within a community of farmers focuses on the social elements that make possible the engagement of farmers (competent and novice) to enable a learning environment to develop

production capabilities. The SFP/PO case can shed light on informal collaborations among smallholder farmers in Global Value Chains, and interactions with the Global Buyer based on idiosyncratic elements that lead to innovation and value creation in periphery countries, providing a different perspective of a relationship between north and south (Swinnen 2007; Ekboir 2012; Ekboir 2012b; Bitzer & Bijman 2015; Dutrénit et al. 2016). Belonging to a community of people that share the same goals seems to favour this dynamism which can favour the adoption of new technologies in GVC (Vandeplas 2015). This case study will contribute to the debate of modern GVC that improve the production capabilities of farmers, alleviate poverty and make them competitive in highly competitive markets.

3.4.2 Technological Learning

Technological Capabilities are fundamental for farmers in GVC because they measure the farmers' competitiveness and perpetuity as part of the chain. However, extensive research on Technological Capabilities demonstrates that apart from the farmers [firms] efforts, there are other actors that support their development, i.e. Dahlman & Cortes (1984) discussed that support from the government, engineering groups and the industry itself are necessary to develop technological capabilities. In line with this Dahlman et al. (1987) highlighted that rather than developing it, firms instead *acquire* technological capabilities. This acquisition involves hiring people with the experience and the ability to make conscious efforts to monitor what is being done, try new things, keep track of developments throughout the world, accumulate added skills, and increase the ability to respond to new pressures and opportunities.

However, acquisition of Technological Capabilities involves more than just hiring experienced people. In this regard, Lall (1993) focused on the actual learning. Lall explains that firms embark on an *uncertain learning process* depending on the nature of the technology. This means that firms need to make an effort to learn how to use and adapt new technologies. Kumar et al. (1999) in their study of Indonesian manufacturing firms indicated that the cultivation [development] of technological capability is affected by learning mechanisms which include in-house training programs; learning-by-doing; strong networking between various units of the firm; and strong linkages with local suppliers, clients, other firms, industry networks, research institutes, governments, universities, financial institutions, and local or foreign consultants.

Cimoli & Porcile (2012) also pointed out that technological learning features a set of interrelated regularities that can be briefly summarised as follows: 1) it requires real time, 2) has a critical tacit component, 3) there exist cumulative processes leading to vicious or virtuous cycles, and institutions interact virtuously. They also argued that for a virtuous cycle to exist, there must be in place an articulated institutional framework in which firms and non-profit organisations are nested in a network of technological and productive flows, which enhances the problem-solving capabilities of producers.

Regarding learning mechanism for firms in GVC, Schmitz & Knorringa (2000) argued that due to competitive pressures global buyers (GB) have the need for their suppliers to learn for competitive pressures, for necessity and not for generosity. For example, in their analysis of the Brazilian shoe Value Chain, they found Global Buyers had to assist firms out of necessity to reach international quality and delivery standards in order to enter and the stay on

those high-income markets. Global Buyers needed to develop a learning environment with their suppliers. The role Global Buyers play in the learning process of the supplier is critical. Ekboir (2003) tells us complex technologies are developed and disseminated by networks of agents. In Global Value Chains, Global Buyers and other actors make use of their assets to develop a learning environment to help disseminate them and adapt it to their suppliers. The impact of these networks depends on the assets they command, their learning routines, the socio-economic environment in which they operate, and their history.

This is consistent with Giuliani & Bell (2005) who analysed the relationship between spatial clustering and the technological learning of firms. They found that knowledge is not diffused evenly 'in the air', but flows within a core group of firms, which contribute actively to the acquisition, creation and diffusion. As for developing countries, Lall & Pietrobelli (2005) suggest firms are forced to rely almost exclusively on internal efforts to build their technological capabilities due to poor external sources of information. In GVCs, however, Morrison et al. (2008) argued that participation in a GVC is beneficial for firms in Less Developed Countries (LDC), which are bound to source technology internationally.

However, the issues of learning and technological efforts of farmers remain largely unexplored in the GVC literature, specifically in agricultural VCs. Scholars have proposed a shift in the empirical and theoretical agenda, arguing that research should integrate the analysis of the endogenous process of technological capability development, as suggested also by Lall and Giuliani. To further accomplish the objective of understanding how participating in SFP/PO enables smallholder farmers to develop production

capabilities, this PhD study takes into consideration farmers' efforts and mechanisms that allow knowledge to flow between the Global Buyer and farmers, and among farmers as well. In this regard, I formulated the following research question, *how do smallholder farmers in SFP/PO learn the skills for production capabilities to become part of the Global Value Chain?*

However, there is extensive literature on how farmers learn. The work of Oreszczyn et al. (2010) sheds light on how farmers learn in networks. Her work explains that farmers have a very distinct learning process which draws on a wide network of people and is articulated through social elements. Farmers draw first on informal learning opportunities in their own network of practice, but also on their web of influencers, who are individuals that act as boundary spanners. For example, individuals with know-how carry out certain activities that other farmers don't. Through informal learning opportunities and by interacting with knowledgeable individuals, farmers learn new activities and practices. There is an emphasis on informal and experiential learning and tacit knowledge. The importance of an informal learning process is apparent in farmers and the implications this could have for agricultural value chains is worth analysing (Pietrobelli & Rabellotti 2011, Klerkx et al. 2010; Spielman et al. 2011)

To exemplify networks in farmers, Ekboir (2012a) highlights the individual and collective capacity of farmers who belong farmers organisations or GVC. He argued that farmers gain better access to new markets and production methods, including methods of managing natural resources, by belonging to organisations. Farmer organisations acquire new bargaining power in input and output markets, and they can also coordinate other farmers and increasingly participate in designing and implementing innovation (Dutrénit

et al. 2012). Ouma's (2012) findings suggest that agribusiness grouped in bigger organisations like co-operatives have developed more sophisticated high-value market connections that lead to local value addition and generate significant returns regarding employment and farm income.

3.4.3 Innovation

In Global Value Chains, innovation and upgrading have been used as synonyms and have frequently overlapped (Morrison et al. 2008). Upgrading comes out of suppliers' efforts, their linkages to other firms and clusters or Global Buyer, though subject to their interest which may not be the same as suppliers'. Among empirical studies of upgrading there is a mixing up of causes and effects. Although some recent contributions argue that upgrading needs investments and effort at the firm level (Kishimoto, 2004; Schmitz & Knorrinda, 2000; Schmitz, 2004 in Morrison et al. 2008), in most empirical analyses there is no systematic attempt to investigate the continuous social learning and innovation in Global Value Chains, specifically in the context of value chains with a social purpose.

In the case of Mexico, innovation in smallholder farmers has been studied from the traditional or linear perspective. Vera-Cruz et al. (2008, 2011) gave the example of Produce Foundation. They stressed that the traditional instruments to allocate funds for research did not contribute to solving the technological needs of farmers, especially smallholder farmers, mainly because organisations such as Produce Foundation, reflected a linear model of science and innovation. However, what is interesting about their study, is the misalignment between the needs of farmers and researchers, mainly reflecting

the researchers' reluctance to adapt their research programs to interact more actively with farmers.

Following on from the interactions argument, Ekboir & Vera-Cruz (2012) found that in the building of innovation capabilities, an intermediary organisation actively facilitates interaction among actors who seek to innovate. To further elaborate the objective of this PhD on *understanding how farmers develop production capabilities*, the study examines the exchange of technical and commercial information, identifying potential partners, brokering interactions and fostering exchanges of resources and knowledge. Therefore, I formulated the last research question, *how does the technological change occur in farmers' production capabilities?* This question focuses on the social elements of the learning as resources that enable a continuous learning process for farmers to further develop production capabilities. For example, Ortiz et al. (2013) argued that farmer's organisations play a significant role in Bolivia, Ethiopia, Peru and Uganda, helping farmers to improve varieties of potato. Also, Abebe et al. (2013) provide insights into the determinants of adopting improved potato varieties in Ethiopia, focusing on the role of the agricultural knowledge provided by other organisations such as farmers and NGOs which helped them in the adoption of this new variety.

In sum, farmers have been innovating for a long time, but innovation processes still need to be more thoroughly understood at the farm level. What seems to work for farmers is that they value the advice and experiences of other farmers highly. McKenzie (2013) points out that direct farmer-to-farmer knowledge exchange is expected, but what is more surprising is the role that farmer groups played in farmers' developing technological capabilities.

3.5 Summary

In this chapter I presented a review of research work on Global Value Chains, specifically work that has addressed globalisation of agricultural production. The review corresponds to two streams of literature, Global Value Chains (GVC) and Technological Capabilities (TC). Throughout the chapter, I have presented the current narrative about globalisation of agriculture, its relationship with production capability development and the contribution of the study as part of new narrative in globalisation of production.

Much of the current literature on GVC has built up a narrative around production of a single commodity for value generation, in which Global Buyers [Transnational, Multinational and Medium sized firms] allocate production activities to developing countries to take advantage of low wages. These activities are not part of the core value added activities that lead firms that they need to keep in-house. This raises the need for governance structures that ultimately create an asymmetry of power between farmers and global buyers. Furthermore, the current evidence points out that Global Buyers only trade with large farmers who can meet their requirements, excluding smallholder farmers that do not have these capabilities.

The PhD study is placed within the discussion of Global Value Chains driven by social motivations examining the opportunities and social relations that take place among actors such as suppliers, global buyer and leaders in the chain. Considering previous studies, the gap the study examines is the understanding of social aspects, specifically, social purpose in the value chain, throwing light on the social ties that enable collaboration and learning opportunities in value chains in production capability development.

This PhD study focuses on social relations in GVC, which are worth examining when investigating the combined effort amongst members of the value chain to enhance participation of smallholder farmers in production activities as well as mutual understanding amongst participating smallholder farmers, global buyer and leaders in the chain. Furthermore, this study adds up to previous research which focuses on the importance of production capability development in GVC which considers the idiosyncrasy of farmers, that allows collective actions among them and global buyer and thus cooperative relationships that enable learning, so enhancing production capabilities. This study highlights the importance of collective actions and more symmetrical relationships among farmers and global buyer when it comes to face increasing competition, product differentiation and innovative for products and techniques.

This PhD study adds up to the discussion of Global Value Chains by presenting a case of San Francisco Produce/Peninsula Organics (SFP/PO) with a social purpose. The social purpose is reflected in the inclusion of smallholder farmers located in rural and marginalised areas in Mexico. The purpose of their inclusion is to create value by growing certified organic produce and selling them in high-income countries with the help of a Global Buyer. In the following chapter, Conceptual Framework, I will explain the selection of concepts that guided the analysis of data to comply with the objectives and shed light on the research questions.

Chapter 4: Conceptual Framework

4.1 Introduction

Between 2007 and 2010, I worked as an agribusiness practitioner with a local firm that produced organic culinary herbs. This firm was export oriented, and sold their produce to San Diego and Los Angeles CA, US. My job was to handle logistics, sales and price negotiations with customers. During those years, I could understand what position farmers had with regards to their daily practice in agriculture, and how they benefited from producing and exporting to the American market. I became aware of difference among farmers in southern Baja Peninsula and Sonora Mexico that exported produce into the US market. The difference among farmers was those smallholder farmers that could reach a competitive level in international markets, keeping a sustainable agriculture programme and having profitable operations, and those whose competitive level was low, struggled to sustain a programme to grow on a yearly basis and made no profit. I came to understand what foreign brokers expected from their farmers in terms of quality, delivery times, prices, and above all, the level of interconnection to support them.

This chapter uses San Francisco Produce/Peninsula Organics (SFP/PO)¹⁶ as a case study and shows the framework used to analyse it. I explain how I built the conceptual framework for my PhD project by sketching out the case. I draw on the context of San Francisco Produce/Peninsula Organics, and the effects on smallholder farmers, namely the change in the production system, crop

¹⁶ For the purpose of confidentiality, the original name of the brand has been changed.

pattern, export-oriented market and certifications (organic and food safety). Based on the context and data from interviews I identified four stages in the analysis that are related to the development of production capabilities in smallholder farmers when implementing the organic farming operation. To address these stages in the analysis I explain my choices for four different streams of literature: Global Value Chain (GVC), Technological Capabilities (TC), Communities of Practice (CoP) and Knowing in Action (KA) and how I use these concepts to help me in my analysis.

What San Francisco Produce/Peninsula Organics case sheds light on, is that smallholder farmers, subsistence, and marginalised farmers can develop new agricultural practices, create value, and knowledge. San Francisco Produce/Peninsula Organics also sheds light on how value chains in agriculture can achieve social purpose by integrating unskilled farmers into global markets and improve their living conditions. The case also highlights how with co-operative partnership farmers can contribute to technological improvements and enhance competitiveness in the value chain.

In Mexico agriculture is more than a productive sector. Beyond its economic contribution to Gross Domestic Product, it represents a set of social functions and is linked to the development trajectory of the country. These social functions are important because they concern the population that lives in rural areas. Specifically, those that can produce food from their own land, and those employed in the agricultural sector. It is important for food production, it is intrinsically related with poverty and with export orientation and thus it is interconnected with international markets (SAGARPA & FAO 2014).

One of the changes the sector has undergone is the globalisation of the Mexican economy. Over the past 30 years, Mexico has adopted an economic model based on free markets (Neoliberalism), which has led transformations in the agricultural sector. The basics of this transformations resided in the fact that the Mexican state would no longer fully interfere in the economy. Among those transformations are the reduction of budget to support farmers across the country in terms of financial aid (loans with flexibles conditions and low interests rates) to produce, subsidies on technical assistance, and supply of inputs (fertilisers, improved seeds, insecticides, pesticides and fungicides). The state sold the commercialisation firm and repealed the policy of guarantee prices. Today 91.2% of farmers are subsistence and local oriented market. They must trade their produce with prices set by markets both nationally and internationally. They lack of commercialisation channels and linkages to value chains in foreign markets. (CEPAL 1999; Ortega et al. 2010; Guadalupe et al. 2013; Cruz & Polanco 2014).

Despite this scenario, the Northwest Region¹⁷ of Mexico has been able to put up with the economic context. The region carries out agricultural practices that differentiate them from other areas. The major contribution to the sector comes from farmers that own extensive amounts of land. These farmers represent 0.3 % of total farmers. These farmers are characterised by being export oriented, comply with international standards, can afford technical assistance, state of the art technology, and inputs (SAGARPA & FAO 2014). In this sense, the region is well known for their capacity to adapt to the new economic paradigm: global markets and innovation, and their social stability (Ibid).

¹⁷ The northwest region of Mexico is formed of Baja California, Baja California Sur, Sonora and Sinaloa states.

For this PhD project, I conduct a case study of San Francisco Produce/Peninsula Organics. This value chain began operations 30 years ago. It describes itself as a food-chain based on the idea of farm-community centred production and supported by international market opportunities. San Francisco Produce/Peninsula Organics is formed by a group of smallholder farmers located in southern Baja Peninsula and Sonora Mexico and a broker firm located in San Francisco CA, US. Both farmers and broker firm have made a cooperative partnership to take advantage of market opportunities. The broker firm is social purpose and supports farmers that are subsistence and local oriented. The broker firm supports farmers in Mexico in terms of financial, technical, technology, and commercialisation needs. As a result, farmers in Mexico are integrated to international markets, are export oriented, take advantage of international prices. The mission of San Francisco Produce/Peninsula Organics is to grow great tasting, healthy food in a socially and environmentally responsible manner. They emphasise it and place it at centre of their operations.

The study is divided into a descriptive and analytical parts respectively. The two main objectives link to the descriptive and analytical parts. Descriptive part addresses the first objective a) to examine the social purpose of San Francisco Produce/Peninsula Organics. The analytical part addresses the second objective, b) to understand how participating farmers in San Francisco Produce/Peninsula Organics learn to develop skills for production capabilities. To address the second objective, three research questions are set:

- 1. How do farmers display competence in the community of farmers of San Francisco Produce/Peninsula Organics?*
- 2. How do smallholder farmers in SFP/PO learn the skills for production capabilities to become part of the Global Value Chain?*

3. *How does technological change occur in smallholder farmers' production capabilities?*

The chapter is organised as follows. First, drawing on Global Value Chain (GVC) concept, I address the first objective of the study. I describe production activities such as organic practices, innovation techniques, and the commercialisation activity, as part of an integrated global operation of production. In this description I draw on the social purpose of the value chain specifically, how these farmers and the Global Buyer come together to improve farmers' living conditions and create economic opportunities for them in international markets.

In the analytical part, I address the second objective of the study. To address the first research question, I frame the skills farmers need to grow organic produce and comply with quality and certification standards. To shed light on this issue, I draw on concept of Technological Capabilities (TC), specifically production capabilities. I frame the analysis for the learning process, its relationship with the farm community idea. For this analysis I use the concept of Communities of Practice. Then, to address the second research question, I use the typology of Knowing in Action to examine the learning in situ farmers do. Then, to address the third research question, I draw on the concepts of leadership, connectivity, brokering and learning agenda of Communities of Practice to examine the technological effort farmers make and the cooperative partnership among farmers and between them and the broker and area coordinator to generate technological change. Finally, I present a summary of the chapter.

4.2 Describing San Francisco Produce/Peninsula Organics as Global Value Chain (GVC)

As mentioned above, I first describe production activities smallholder farmers in Mexico undertake, such as organic practices. The study takes the agricultural sector of the Northwest region of Mexico. This region is acknowledged by the Mexican Ministry of Agriculture¹⁸ as being one of the major contributors to the sector, export oriented, state of the art technology, and provider of jobs. The agricultural sector of Northwest region of Mexico can comply with requirements of international markets. However, it is also acknowledged that this region only represents less than 1% of the total number of farmers. The rest are smallholders, using less than 1 hectare, and are subsistence dedicated and not capable of complying with the requirements of international markets. This group of farmers constitutes more than 90% of the total (Robles & Ruiz 2012).

To link this argument with conceptual framework, I choose Global Value Chain (GVC). Global Value Chain provides the conceptual links for describing the connections and interactions among suppliers and Global Buyer in the chain. According to Global Value Chains Initiative (2014) a Global Value Chain is a full range of activities that firms and workers do to bring a product from its conception to its end. These include activities such as design, production, marketing, distribution and support to the final consumer. The activities that can be contained within a single firm or divided among different firms.

¹⁸ In Spanish SAGARPA (Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food) (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación)

When referring to value chains in agriculture, Bamber & Fernandez-stark (2014) argue that high-value agriculture or agri-food products are non-bulk agricultural commodities that require special handling such as fruits or vegetables, or are processed in one or more post-harvested stages. These activities tend to be more labour intensive because mechanisation is complicated. Additionally, there are other activities that are part of this type of value chains. Among these activities is quality, a key factor in determining price and potential markets. These products are subject to a range of sanitary and phytosanitary regulations to ensure food safety and prevent the spread diseases affecting food security.

Schumacher (2014) suggests that these activities are carried out by inter-firm interactions such as suppliers and Global Buyers and with interaction with other firms that source the inputs needed. Gereffi (2005) says that these interactions are related to overcoming the complexities of the activities. That is what the Global Buyers require in product and the conditions supplier needs to comply with. However, Maertens et al. (2012) point out that for developing countries, Global Value Chains in agriculture have changed due to modernisation, globalisation, and commodification processes having an effect on their agricultural sector. As a result, these changes have created a concentration of large, highly competitive farmers, which creates a tendency towards large scale farmers over smallholders.

The farmers I studied were dedicated to conventional farming and did not have the skills to carry out added value activities in agriculture, which are complex and oriented to satisfying the demands of international markets. In this respect, given the effects on the agricultural sector in developing countries, Gereffi et al. (2005) suggests that the integration of new suppliers

into value chain is challenging due to the gap between what is required for domestic markets compared with international markets. That is why highly competent suppliers provide a strong motivation for trading (Gereffi et al. 2005; Morrison et al. 2008).

I argue that San Francisco Produce/Peninsula Organics is a Global Value Chain integrates smallholder farmers into global production. Using Global Value Chain, I study what San Francisco Produce/Peninsula Organics farmers do to produce organic crops. I map out and focus on three elements: 1) *the added value activities* which I categorise as production, innovation, and season activities, 2) *the complexities of production and innovation activities*, and 3) *the relationship and the role of actors in this value chain*: farmers as supplier, the trading firm as global buyer, and a third-party firm coordinating transactions between them.

With regards to 1) *added value activities* I focus on agronomic practices, fertilisation, biological control and innovation. Likewise, I pay attention to the certification process farmers need to perform in order for their crops to be acknowledged as organic, sanitation and fair trade. I focus on season activities that are those related to planning which crops will be produced and quantities in every production. Regarding 2) *complexities of production and innovation activities*, I focus on the information and knowledge flows in relation to production and product specifications. In the third type of activity this study focuses on 3) *relationship between farmers, the trading firm and coordinating firm*. This includes, the role of farmers as suppliers and the trading firm as global buyer and the role of the area co-ordinator. A concrete aspect of the role of area co-ordinator is to undertake knowledge dissemination and to bring

farmers together. Considering the three group of actors I describe the nature of their interactions.

Having explained the use of Global Value Chain concept, I want to clarify that I do not assume that it is the only concept that can be used to understanding global production and the implication for developing countries. On the contrary, there are other concepts such as Global Commodity Chains or Global Production Networks that can also explain global production and the relationship with developing countries in terms of having access to state of art technologies, international standards that may not apply in those countries, and being exposed to international competition.

However, it is important to clarify that, when using Global Commodity Chains, the analysis focuses on understanding inter-organisational networks which are globally dispersed and the role in producing one single commodity. Specifically GVC focuses on the value generation given that production is outsourced to firms located in developing countries taking advantage of low-wages and the drivers of this organisational mode of production be they multinational companies or big traders (Gereffi et al. 1994). Global Production Networks also acknowledges global production and its organisation, but focuses attention onto how this form of production organisation is formed, for example, the roles and influences of national and subnational territories have in placing certain types of industries and their profitability (Ernst 2000; Coe & Bunnell 2003; Ernst 2002; Ernst & Kim 2002; Coe et al. 2008; Coe et al. 2004)

Although both concepts are useful and have been used in my analysis, they do not have the explanatory power in terms of activities that create value in the production process and roles and relationships the actors of the chain. I must

also acknowledge that, for the purposes of this study, Global Value Chains has limitations given that it does not offer analytical categories for understanding the aim of the value chain other than production, governance, and input-output structures. To understand the aim of a value chain that concerns social purpose, Global Value Chain as a concept needs to be complemented.

4.2.1 Understanding Social Purpose in Global Value Chains

Conceptually speaking, although San Francisco Produce/Peninsula Organics as Global Value Chain is about input-output function linking activities, connections for producing or providing a service from its conception to its sale, what distinguishes San Francisco Produce/Peninsula Organics is that it acclaims to have a social purpose. SFP/PO makes the claim that it integrates smallholder farmers and their families into a GVC and provide them with new economic opportunities. As argued in the above section, my criticism of the concept of Global Value Chains is the need for additional analytical categories to explain study situations other than production.

San Francisco Produce/Peninsula Organics makes three claims that form the basis of the philosophy of the value chain. The first claim is that San Francisco Produce/Peninsula Organics is a business-oriented operation setting out not just to make a profit but also do more than that. The second claim is that they have a successful working model of a socially responsible organisation, improving the lives of smallholder farmers and their families by providing economic opportunities with exporting organically certified added value produce. And the third claim is sustainability, understood as to practice farming and business that can be carried out for generations to come, taking care of workers, farmers, the earth, and consumers.

The way San Francisco Produce/Peninsula Organics seems to have reflected its philosophy and mission is by having created an organic farming operation with hundreds of smallholder farmers producing for global markets. As part of their social program San Francisco Produce/Peninsula Organics integrates smallholder farmers in marginalised rural areas in Mexico. San Francisco Produce/Peninsula Organics claims to have helped over 1300 families in rural communities. With training in organic growing practices¹⁹ and a range of practices such as agronomic, phytosanitary and meeting market standards they created economic opportunities in rural communities. Particularly those who live in poor and marginalised rural areas in Mexico. San Francisco Produce/Peninsula Organics aims to focus its efforts on sustainable approach to agriculture, with sound business practices, organic farming methods and innovative organic farming techniques.

The value chain has three distinctive elements of its social purpose: *i) providing economic opportunities, ii) improving smallholder farmers' living conditions and iii) teaching organic farming practices.* As I went out to interview smallholder farmers I realised that there were purposeful connections emerging in every visit. These three distinctive elements interrelate with what constitutes a Value Chain. Concretely, the social purpose of the value chain goes across and articulates added value activities, the complexities of production activities, and the relationship and role of actors. In this regard, I address the first objective of this PhD study, which consists of examining the social purpose of San Francisco Produce/Peninsula Organics. The social purpose is an essential building block of my conceptual framework. Examining the social purpose arises because of the constant and consistent outpouring from smallholder

¹⁹ Harvesting and handling as well as start-up funds

farmers of the social elements that are present in their narratives. The smallholder farmers are driven by a social purpose and connect their activities with the value chain as whole.

Gereffi et al. (2005) points out that value chain research has examined different ways in which global production is integrated, especially when it comes to the possibilities for firms in developing countries to enhance their position in global markets. To my knowledge, social purpose in the value chain has not yet been examined nor how social purpose drives the full range of activities in global production. The logic on which Global Value Chain is based is that firms disintegrate activities such as production and relocate or outsource them overseas, mainly in developing countries, taking advantage of cheap labour, economic, natural endowment, capabilities of suppliers or any other competitive advantage such as tax reductions, or economic incentives.

Global Value Chains in agriculture follow similar logic as well. Fold & Pritchard (2005) argue that liberalised international trade and foreign investment, along with advanced technologies, enable more agri-food products, fresh or processed, to travel unfettered across national borders. Global Value Chains literature has focused on social relations, explaining how the social relations may reshape the relationship between suppliers and global buyers. The focus mainly has been on changes in power positions in the chain (Pelupessy & van Kempen 2005) or leaders affecting suppliers learning process (Vagneron et al. 2009), or corporate power hindering profit distribution, risk or event exclusion of suppliers (Gereffi & Lee 2012; 2016).

In examining the social purpose of San Francisco Produce Peninsula Organics, I focus on how the value chain achieves the first elements of its purpose which

consists of *providing economic opportunities*. I examine the network and the integration of smallholder farmers into the network as well as the type of organisations that form this network. I focus on the diverse group of farmers, why and how they joined the network and their contribution to the social purpose effort. The Social Purpose sheds light on how leaders support farmers who have no financial means, nor equipment, nor the experience and knowledge to be part of a competitive environment.

Additionally, I focus on the connection among smallholder farmers based on production and sales strategies as well as branding partnership. Likewise, I focus on the mechanisms that ensure transparency, visibility and commitment among smallholder farmers in Mexico and Global Buyer in The United States. Providing economic opportunities for smallholder farmers in a value chain is an element of the social purpose that sheds light on a different perspective of the integration of farmers into global production. This element is important given that literature on Global Value Chains in agriculture addresses the integration of smallholder farmers in developing countries into global sourcing networks. However, the studies have mainly focused on increase of their flexibility to source high volume, low-price, diversified products on a year-round basis.

In this regard, San Francisco Produce/Peninsula Organics sheds light on the special organisation required to develop and improve a product or process when driven by social purpose. This takes the form of a non-hierarchical structure, a collaboration-based culture, consensus-based coordination (because members are free to leave the network at any time), there is legal personality. In this relationship smallholder farmers have equal opportunities, access to the same resources, receive the same prices, and have the same rights

and duties. Although there exists legal personality, the sense of co-operation is what sets the tone in the interactions among farmers, area co-ordinators, and the global buyer.

Studies on value chains focus on the competitive advantage which increasingly lies in products that satisfy premium paying consumers with sophisticated preferences. This competition makes lead firms handle a small group of preferred, generally large-scale suppliers capable of meeting their stringent and costly requirements. (Young & Hobbs 2002; Boyd & Watts 1997; Lee et al. 2012). The second element of San Francisco Produce/Peninsula Organics social purpose describes the achieving of the *improvement of smallholder farmers' living conditions*. This is particularly important given that studies mainly have reported that value chains take advantage of cheap labour in developing countries for production activities. However, the purpose of this value chain is mainly socially driven to allow farmers to stay in their communities and work their land.

San Francisco Produce/Peninsula Organics case suggests that focusing on the needs of farmers and supporting them helps firms in developing countries to increase their competitiveness. Why is it that San Francisco Produce/Peninsula Organics has a different logic? The case indicates it is social purpose. The founders of San Francisco Produce/Peninsula Organics said:

"The entire food chain loses when profits are put before people"

This study also indicates that as a case of a value chain that fits the definition because it reflects a process where activities of "firms" and "workers" located in different countries carry out agricultural activities to produce a marketed product. I argue that social purpose is at the heart of San Francisco

Produce/Peninsula Organics, where farmers and their families are the main beneficiaries of value creation and global markets. What this means is that the activities required to grow organic produce, to sell them in targeted niche markets where the added value is acknowledged, and the profits made combine to improve their living conditions. This case sheds light on how social purpose is at the heart of San Francisco Produce/Peninsula Organics, improving the living conditions of farmers and their families by integrating them into the dynamics of global production.

This co-operative partnership sustains smallholder farmers in Mexico by using private enterprise and the economic power of American consumers (Lotter 2004). This partnership goes beyond the supply of inputs at competitive prices for farmers. It strives to accomplish two basic goals. First to get farmers in Baja Peninsula and Sonora, Mexico to grow organic produce which they would market in the US to add an offseason component to their supply, and secondly to keep farmers on their land by providing them with economic incentives and opportunities to keep their land (Lotter 2004)

Humphrey & Schmitz (2002) argued firms in developing countries that participate in value chains in agriculture are under pressure to improve their performance and increase their competitiveness. Danse & Vellema (2007) also argue that technology and knowledge are out of reach for smallholder farmers, due to the lack of resources, capacity, knowledge and network linkages. How can smallholder farmers respond to this type of challenge? The San Francisco Produce/Peninsula Organics case seems to possess a different logic.

Contrary to the argument of (Maertens & Swinnen 2009; Palpacuer & Tozanli 2008) portray smallholder farmers as incapable of meeting the requirements of global buyers, which consequently causes their marginalisation, leading to

San Francisco Produce/Peninsula Organics teaching farmers organic practices. This teaching is part of the social purpose. Within this element of the social purpose I describe how organic agriculture is an added value activity carried out in developed and developing countries. I describe how the actors in the chain engage with one another, constantly following up on the teaching of organic agriculture.

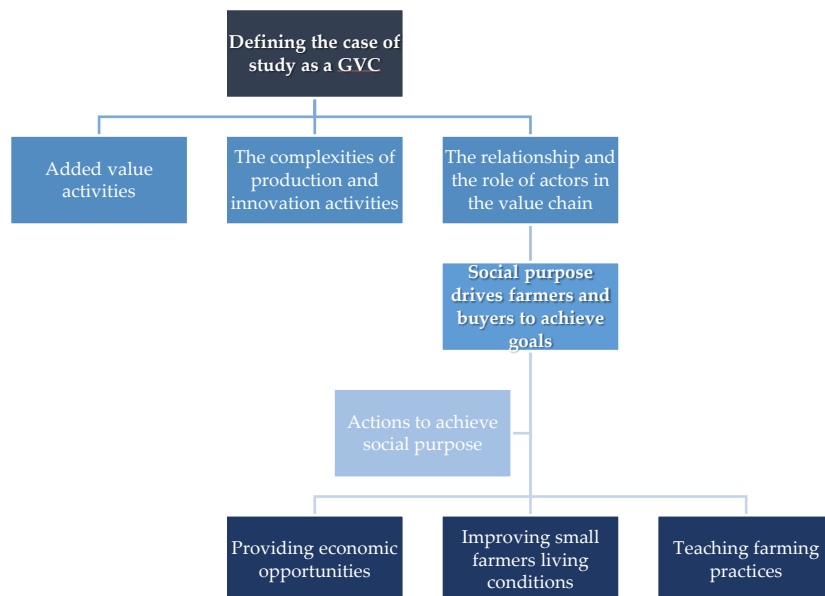
San Francisco Produce/Peninsula Organics sources high volumes of diversified organic produce year-round from these farmers. The value chain targets niches of sophisticated and premium consumers. Competition too leads San Francisco Produce/Peninsula Organics to handle a large group of smallholder farmers who later become suppliers, capable of meeting stringent and costly requirements. The description of this element of the social purpose offers a different perspective of global value chains. San Francisco Produce/Peninsula Organics integrates incapable farmers to integrate them into their chain. This sheds light that the value chain rather than outsourcing production in developing countries, added value production activities are carried out in both countries, Mexico and The United States.

In examining Social Purpose, I also look at the programme developed by farmers, area co-ordinator and broker to create technical solutions and improve the quality of the products by breeding varieties suitable to Southern Baja and Sonora conditions. These mechanisms are based on the cooperation between the coordinating firms and the farmers. This task is not always easy: "If making money was the only criteria, we probably would not be doing it this way, with so many small farmers living in rural towns, many without telephones," (Lotter 2004). In addition to this, there also exists cooperation among farmers. Some of them have facilities that others do not, some have

nursery houses where they produce the seedlings not only for them but for other firms throughout the season, so they can produce enough vegetative material for all and help regulate the flow of produce.

In sum, in examining a Global Value Chain such as San Francisco Produce/Peninsula Organics and its social purpose sheds light on the context this case is embedded, and the dynamics that exist between the global buyer, area co-ordinator, and smallholder farmers. Ekboir (2012) argues that Global Value Chains are more stable and focused on delivering a product or service and are coordinated by a central actor such as a supermarket. **Error! Reference source not found.** illustrates the social elements complement Global Value Chains.

Figure 4. SFP/PO Global Value Chain and Social Purpose



Source: Gereffi (2005) and data collected during field work

Farmers' narrative explains the richness of this case. The value chain achieves social purpose with a network of group of smallholder farmers and the way

they joined San Francisco Produce/Peninsula Organics. It also illustrates how voluntarily farmers, leaders and Global Buyer contribute with knowledge and other resources (money, equipment, and land) to grow organic produce. It sheds light on the improving of living conditions of participating farmers. San Francisco Produce/Peninsula Organics achieves social purpose because it pursues the improvement of farmers' living conditions, and their stability and by delivering organic produce.

4.3 Framing and analysing farmers' production skills development

San Francisco Produce/Peninsula Organics has the aim of providing organic produce with premium quality on year-round basis to overseas markets. Since 1985 San Francisco Produce/Peninsula Organics has taught farmers organic farming practices to be able to produce organic crops, comply with quality standards and certifications international markets require. Through teaching and promoting organic practices²⁰ around 1,300 farmers have been able to develop skills to be integrated in the value chain and compete in international markets. I argue that collaborative partnership of San Francisco Produce/Peninsula Organics has an impact on the development of skills by farmers. By talking about skills, I think of farmers becoming capable of growing organic crops, skills that they did not have previously but have been able to develop.

I use the concept of Technological Capabilities (TC) to frame the skills farmers need to develop to be integrated in the value chain activities and maintain competitiveness in a changing environment. Lall (1992;1993) and Bell & Pavitt

²⁰ such as growing harvesting and handling as well as administrative training for certifications

(1995a) define Technological Capabilities as technical skills, that allow a firm [a farmer] to utilise equipment or technical information. Technological Capabilities focuses on the *learning processes* that are involved in the gradual accumulation of a minimum base of technological knowledge in the firms. This allows firms to carry out innovative activities (Ibid).

When a firm can create new technologies, develop new products and processes, it means they possess the ability to generate *technological change*. This is because the firm has made a *technical effort*, which means the firm moulds technology to use it in a range of specific situations, modifying it to improve performance (ibid). In other words, Lall (1992) says that firms operate on their technological progress, building upon efforts, experience and skills. In this respect, firms, present differences in their technical effort and mastery according to industry, size, market, level of development and strategies.

This study of the concept of Technological Capabilities is pertinent because it refers to the level of skills members must develop. By skilled members I mean smallholder farmers that work around the idea of a collaborative partnership to manage and generate change in the form of undertaking a range of productive activities. Production capabilities are specific to San Francisco Produce/Peninsula Organics in the form of knowledge that is made up by farmers and shared among them. From the Technological Capabilities framework, I will only use *Production capabilities*²¹ that for this case are defined as the skills such as quality control, operation, and maintenance. Other skills like adaptation, improvement or equipment stretching to the most demanding such as research, design and innovation do not apply to the study. The skills

²¹ Within the Technological Capabilities classification is also investment and linkages capabilities. (Bell & Pavitt 1995; Kumar et al. 1999; Morrison et al. 2008)

involved determine not only how well-given technologies are operated and improved, but also how farmers' efforts are utilised to absorb the tacit elements of organic practices (Bell & Pavitt 1995; Kumar et al. 1999; Morrison et al. 2008).

It is important to clarify that, in this case, organic agricultural practices are the actual technology. They are like a formula for doing things, with the distinction that the knowledge goes towards growing organic crops, which implies a change in the way farmers have thought about agriculture. Technology also includes how to manage certifications such as organic, sanitation and fair trade.

Regarding the idea of a farm-community, cooperative relationship and the commitment to providing training, I focus on the *Technological Learning process*. I analyse the *technological effort* farmers make to develop the skills needed to produce organic crops and their certification process as well. I pay attention to the efforts and activities that former conventional, subsistence and smallholder farmers undertook with the purpose of becoming organic and export-oriented farmers. The skills farmers developed show the *technological change* they have gone through. Farmers in San Francisco Produce/Peninsula Organics fully integrate when they develop the skills by trying to make the tacit elements of the organic practices explicit, and when they access, implement, absorb and build upon knowledge to carry out these activities and contribute by owning the social purpose of San Francisco Produce/Peninsula Organics.

To analyse the *technological learning process* of production capabilities development I use the concept of *Communities of Practice* (CoP) of Wenger

(1998;2000;2014;2015). Communities of Practice helps understand learning itself as social learning process. It places the social perspective of learning at the centre. Wenger (2000) says that knowledge is therefore a matter of displaying competences. Thus, competence is socially defined. He explains that competence is to know something. Thus, people know things because they relate to a community that has developed vocabulary, concepts, and ways of doing things (Ibid, p. 225). He says that we each experience knowing in our own ways” (ibid, p. 226). Socially defined competence is always in interplay with our experience. It is in this interplay that learning takes place (Ibid)

Communities of Practice is pertinent to frame the *learning process* of farmers in San Francisco Produce/Peninsula Organics as a social process because it allows to explain the concepts and ways of doing organic practices. Specifically, the collaborative partnership. In , I illustrate how I draw on the competence generation in Communities of Practice to explain the building block of the social learning system in San Francisco Produce/Peninsula Organics. By using this concept, I address the question of *How do farmers display competence within the community of participating farmers of San Francisco Produce/Peninsula Organics?* In the analysis of competence display, I use the building blocks as follows:

1. *Joint enterprise* means that members are bound together by their collectively developed understanding of what their community is about, and they hold each other accountable to this sense. A Communities of Practice must show leadership in pushing its development along and maintaining a spirit of inquiry. Using this block helps understand what really means by farmers in San Francisco Produce/Peninsula Organics the collective understanding of growing organic produce. Farmers understand San Francisco

Produce/Peninsula Organics as community, they become competent and can contribute to it.

2. *Mutual engagement*: means that members build their community by interacting with one another with norms. To be competent is to be able to engage with the community and be trusted as a partner in these interactions. They must trust each other, not just personally, but also in their ability to contribute to the enterprise of the community, so they feel comfortable addressing real problems. Using this block helps understand the interaction based on norms of organic farming to respect the environment, avoiding the use of toxic and persistent chemicals. Following these norms in the interactions among farmers, area co-ordinator and brokers make farmers trustworthy in San Francisco Produce/Peninsula Organics.
3. *Share repertoire*: is communal resources such as language, routines, sensibilities, artefacts, tools, stories, styles, etc. To be competent is to have access to this repertoire and be able to use it appropriately. Being reflective on its repertoire enables a community to understand its own state of development from multiple perspectives, reconsider assumptions and patterns. (Wenger 2000) This block is the sign for a farmer in San Francisco Produce/Peninsula Organics to fully have access to communal resources. For a farmer to know they reflect the language, routines and stories they learned when doing the organic practices.

To sketch out the analysis on technological learning process, I use the typology proposed by Amin & Roberts (2008) “knowing in action”. I choose this typology because it helps explain the elements of learning *in situ* that lead to

technological change. Additionally, it complements the social learning analysis of Communities of Practice. Even though Communities of Practice highlights the relationships as essential for learning, it captures a generic manner of learning. This typology enables a more thorough approach of the social learning of San Francisco Produce/Peninsula Organics, by examining the negotiation of meaning and knowledge generation, underlying the social process and mechanisms under which smallholder farmers learn organic agricultural practices (Sumane et al. 2016)

In this regard, I address the research question of *how do farmers learn the skills for production capabilities?* The typology includes types of knowledge, social interaction, types of innovation and the dynamics of organisations. It illustrates the typology where I focus on the type of *Knowledge*, the codified knowledge such as manuals and visual instructions. But specifically, the type of knowledge such as know-how, experiential and informal. In this regard, it is pertinent to clarify it is not the purpose of the analysis to underpin all types of knowledge. However, experiential knowledge is a type of tacit knowledge that is anchored in the context of farmers. This means that farmers link what they know, which is, their knowledge on agriculture with the context they are immersed in. Sumane et al. (2016) argued that in agricultural context, and more concretely, farmers in developing countries, informal knowledge has considerable potential to strengthen agricultural sustainability and resilience. Then I move on to *Social Interaction*. This works as an umbrella element that comprises four sub-elements. The first of these sub-elements is proximity/nature of communication. This is helpful to explain the face to face as well as virtual communication and its relationship with the type of knowledge.

The second sub-element is temporal aspects. This is helpful to understand how long these interactions took and the ongoing feedback process. And nature of social ties to explain the personal and institutional trust in Communities of Practice learning system. The last two elements are: Innovation and Organisational Dynamics. As innovation is a complex term, in this research project it is used as the upgrading process like mechanisms to improve crops in flavour, texture and colours based on collective and cooperative efforts. And as for Organisational Dynamics, this sheds light on the position farmers play as newly aggregated and its relationship with learning.

Finally, I analyse the *technological change*, the continuous learning effort farmer make to learn organic farming practices. According to Lall (1992;1993) *Technological Change* is understood as the continuous process to absorb and create technical knowledge which enables firms to improve, master or adapt a technology to new conditions. In Communities of Practice, farmers as practitioners in the community have an agenda that enables to continuously embrace in an effort for learning driven by leadership in farmers, connectivity relationships among them and by defining learning projects. Thus, illustrates how farmers as a community of practitioners can support other farmers in their learning from basic production skills such as cultural labours to more complex task as developing their own seeds and technical solutions. In this regard, for farmers to try, their learning process must have a meaning. To further analyse this continuous learning process and effort I draw on elements of Communities of Practice such as leadership, connectivity and brokering relationships and taking responsibility of the learning agenda.

Wenger (2000) states that Communities of Practice depend on internal leadership and enabling the leaders to play their role to help the community

to develop (p.231). *Leadership* in Communities of Practice is used to describe the role of competent farmers and area co-ordinators in motivating other farmers in their continuous learning. In addition, Wenger (2000) argues that Communities of Practice is about enabling a rich fabric of connectivity among people. In San Francisco Produce/Peninsula Organics due to a robust and wide fabric of connectivity in which farmers interact, enabling the flow of experiential knowledge. Furthermore, Wenger (2000) argues that in Communities of Practice, brokering relationships between people who need to talk or between people who need help and people who can offer help, helps build up connectivity in the community. And, finally, San Francisco Produce/Peninsula Organics farmers take responsibility of their learning agenda by defining a structured programme that enables them to further build on their capabilities and develop new varieties for producing new products.

With this analysis, I address the last research question of *How does the technological change occur in farmers' production capabilities and effects on the organic farming practices?* With these elements of Communities of Practice, I focus on the continuous effort of learning that farmers in San Francisco Produce/Peninsula Organics make, creating experiential knowledge that contribute to the development of their production skills and further innovations. In innovation activities I focus on the activities farmers do to improve their varieties and create new ones with different colours, textures and flavours and introduce them in the market.

Analytical Framework

Figure 5 Global Value Chains and Social Learning Process for Producer Capabilities



Source: Wenger (2000), Lall (1992, 1993), Amin, A & Roberts, J (2008)

4.4 Summary

The chapter addresses the agricultural sector of Mexico. It draws particularly on the northwest region given the dynamics it shows and its characteristics. The chapter highlights the importance of agriculture for Mexico given its relationship with competitiveness, and integration into value chains, innovation and addressing rural livelihood. These aspects gain importance especially after the economic reforms the country has undertaken and the effects it has gotten on the sector. However, the chapter presents and analyses a case with positive effects on unskilled farmers located in marginalised areas that have been integrated into value chains, produce added value produce and achieved social purpose.

This chapter links the case study San Francisco Produce/Peninsula Organics with the analysis. It explains the build-up process for conceptual framework that had two dimensions: one conceptual and one analytical. The chapter draws on four stages of analysis identified from interview data for which I draw on four different concepts to present a thorough picture of the context for this project. From Global Value Chain (GVC) to Technological Capabilities (TC), Communities of Practice (CoP) and Knowing in Action (KA). These concepts have explanatory power to answer the research questions.

For the conceptual dimension, the chapter introduces Global Value Chain to explain the complexities of activities to produce organic value-added produce, and level of capabilities required in farmers. Global Value Chain addresses the production activities farmers in Mexico engage in, be they organic practices or innovation techniques. With Global Value Chain the chapter maps out and

describes the activities farmers carry out for productive and competitive world markets. This chapter introduced descriptive elements to the concept of global value chains to address the social purpose in the value chain. Especially the aim to create economic opportunities to increase their income and improve their living conditions.

For the analytical dimension the chapter frames the skills farmer need to participate in San Francisco Produce/Peninsula Organics. It introduces Technological Capabilities, from which Production Capabilities is used. This concept addresses farmers' skills development. This chapter explains the importance of Technological Capabilities by framing the skills needed to carry out quality control, operation, and maintenance activities as well as complying with standards and certifications. It also highlights San Francisco Produce/Peninsula Organics teachings on organic farming practices. To complement the analysis, the chapter elaborates on Communities of Practice to learning process farmer undertake. The chapter highlights the social component of the learning process by focusing on San Francisco Produce/Peninsula Organics cooperative partnership in the technological learning. Farmers know because they interact with other farmers with the same language and ways of doing things. There seems to be an effort from both, the leaders in San Francisco Produce/Peninsula Organics and farmers where sharing knowledge occurs when doing things together. These interactions help understand why farmers make efforts to learn by making sense of what the community is about. Communities of Practice explains farmers' technological change and their meaningful efforts. Lastly to analyse the sharing knowledge dynamic interaction between lead firms Knowing in Action concepts are used.

This chapter sheds light on the fact that smallholder, subsistence and marginalised farmers can develop new agricultural practices, create value and knowledge. Furthermore, global production is about creating value and social purpose in developing countries by constructing cooperative partnership. It also sheds light on the social elements of farmers' learning, which is interactive and participatory, where knowledge generation places farmers as active partners and knowledge co-producers rather than passive receivers. In the following chapter I conduct the analysis of San Francisco Produce/Peninsula Organics and its social purpose.

Chapter 5: SFP/PO Achieving Social Purpose through Agricultural Value Chains

5.1 Introduction

In San Francisco Produce/Peninsula Organics, smallholder farmers are actors benefitting from participation in global markets. The Global Value Chain of San Francisco Produce/Peninsula Organics is not based on using cheap labour to maximise profits, but instead on using access to global markets to provide livelihoods to smallholder farmers. Contrary to the logic of Global Value Chains where modernization, globalisation and commodification processes have negative effects for farmers from developing countries when it comes to participating in Global Value Chains (Maertens et al. 2012), San Francisco Produce/Peninsula Organics aims to benefit smallholder, subsistence, and marginalised farmers.

As discussed in chapter 3, understanding globalisation of production in general, and particularly in agriculture, reveals the underpinnings of the interactions between suppliers and Global Buyers with regards to production activities they carry out. The mainstream literature on GVC states that Global Buyers generate value by allocating production in periphery and semi-periphery nations (developing countries) characterised mainly by low wages. This concept is based on the understanding that crop production is viewed as a labour intensive [low value] activity. Applying this to agriculture, leading firms located in developed countries carry out higher-value added activities such as marketing, trading and innovation, whereas crop production is

outsourced to developing countries (Goldfrank 1994; Global Value Chains Initiative 2014).

I argue that San Francisco Produce/Peninsula Organics has a social purpose. The social purpose is what distinguishes the logic of SFP/PO from the other Global Value Chains studied. The social purpose of San Francisco Produce/Peninsula Organics consists of taking advantage of global markets and providing economic opportunities to smallholder farmers. In addition, within the logic of social purpose, the provision of economic opportunities is achieved by integrating smallholder farmers into the production of organic produce for export. Consequently, the social purpose addresses the rural livelihood, inclusion of smallholder farmers, and the promotion of learning for production capabilities. The social purpose enables collective engagement among smallholder farmers, Global Buyers, and leaders in the chain to support themselves financially, keep pace with developing technology, and comply with agri-food standards.

In this chapter, I examine a) production activities of smallholder farmers and b) the social purpose of Global Value Chain. I use the concept of Global Value Chains (GVC) due to its pertinence to reflect and examine the connections between suppliers, global buyers, and production activities farmers carry out to produce added value crops. Although San Francisco Produce/Peninsula Organics has similarities to any GVC in that it delivers a product with added value, it distinguishes itself from other GVC due to its social purpose. In this regard, I examine three distinctive aspects of its social purpose, i) providing economic opportunities to smallholder farmers, ii) improving smallholder farmers' living conditions and iii) teaching organic farming practices.

Agriculture in Mexico is more than simply a productive sector since it contains a set of social functions in relation to food production. Specifically, agriculture is relevant to the provision of the food industry as well as playing a crucial role in food security. In global agriculture, producing countries in general, but developing countries particularly, are very intertwined because of social factors such as living costs, quality of life and income of the population dedicated to it (FAO & UN 2009). Furthermore, this sector is fundamental in rural areas, in which 37.5% of the population lives (that is 41.5 million). Thus, rural development is essential to national growth. Between 1994 and 2010, primary activities lost importance in the generation of employment and contribution to GDP, while non-agricultural activities, especially those related to food manufacturing have higher growth (Ibid). This is relevant when looking at the stratification of farmers in Mexico, where at least 50% of smallholder farmers produce crops for subsistence (main basic crops such corn, sorghum and wheat), 25% sell their produce in local markets with sporadic business linkages, and with no value added.

Building on the above discussion, and according to González (2012), the reasons for low growth in agricultural activities are low levels of production, technical and business skills, the lack of leverage power to negotiate stable production plans, and high prices based on crops that are demanded by national and international markets. This issue is worth analysing and understanding given the insufficient technological innovation, low productivity and limited access to markets for smallholder farmers. That is why, the description of SPF/PO as a GCV and its social purpose is pertinent to understanding that production activities such as organic practices and innovative techniques add value to the agricultural products and contribute to the development of production and business skills, leverage power and

strong market linkages in the agricultural sector. Essentially, examining SFP/PO addresses the objective of examining the social purpose of SFP/PO.

Based on the characteristics of SFP/PO, the description is divided as follows. First, I focus on the participating firms, the network structure of the GVC, their organisation and their role regarding production activities. I examine the connections and interactions amongst participating firms and how organic crop production is carried out. Second, I focus on the description of production activities such as cultivation, fertilisation and biological control and innovation. Likewise, I focus on organic certification processes as part of production activities. Then, I explain and discuss the complexities of production and innovation activities. Finally, I present a summary of this chapter.

5.2 Providing economic opportunities

According to González (2012) the Mexican Agricultural sector is characterised by having more than 50% percent of its Rural Economic Units (REU) within the subsistence and local market category. This category captures the poorest farmers who are barely linked to national or international markets. Ulrich et al. (2012, in Anderson & Lent 2017) argue that smallholder farmers are often stuck in a vicious circle of poverty, which prevents them from improving their livelihoods mainly because subsistence farmers are largely excluded from opportunities to take part in the production chain. In addition, Fischer & Qaim (2012 in Anderson & Lent 2017) argue that smallholder farmers face constraints such as living in remote areas, poor infrastructure and high transaction costs which impede them from taking advantage of markets.

From the Global Value Chains perspective, San Francisco Produce (SFP) is the Global Buyer (GB), a firm with a presence in San Diego, Los Angeles and San Francisco, California, USA; where their headquarters are located. In 1980, San Francisco Produce (SFP) started operations and established relationships with two wholesale distributors in the San Francisco Bay area. These first two customers created a stable business relationship based on the growing demand for organic produce. From a business perspective, SFP looked to meet market demands by identifying regions that would have the climatic conditions to grow crops during the offseason on the west coast of The USA and ensure year-round supply.

In 1985, the founders²² of San Francisco Produce went to Mexico. In Southern Baja Peninsula, they encountered a community of farmers which they described as “struggling, subsistence-level” (Reti 2010). This encounter was the chance for the founders to put into practice the social purpose they had. From their previous experience in Guatemala of helping smallholder indigenous farmers make a living, they got the idea of the need for social purpose, concretely teaching organic farming practices. This represented an opportunity in both ethical and business terms. Their experience in Guatemala and the growing demand for organic produce resonated in their minds (Reti 2010). Therefore, the founders conceived the idea of growing organic crops in southern Baja Peninsula to supply the market during the offseason and attack poverty issues (Ibid), based on the mechanics of the markets and with the support of their two wholesale customers:

“We’ve got this nutty idea. [said one of the founder of SFP to one of the wholesalers] What do you think? And by the way, if

²² An American entrepreneur, and agronomist and his wife

you think it's a good idea, tell us how many boxes of green onions you would buy per week, and how many boxes of tomatoes you would buy per week, and how many boxes of zucchini you would buy per week, because we're going to go try to do this."(Reti 2010)

The quote sheds light on the discussions held between the founders and wholesalers to grow organic produce to achieve the social purpose of providing economic opportunities to struggling farmers in Mexico. It also illustrates the settling down of the social purpose based on the demands of markets as a binding element and the justification of the farming operations. This goes in line with Ger's (1999) argument, in that it is precisely smallholder farmers in developing countries who are best-suited to provide the 'rare', the 'unspoiled', the 'natural', the 'unique', the 'exotic' or the 'unusual'. According to the founders, families were making around three thousand dollars a year (Reti 2010). Thus, the value chain achieves social purpose by building a network of smallholder farmers that are marginalised and living in rural areas.

As demand for more produce not only kept stable but increased in years thereafter, there was a need for more produce and therefore more farmers. One of the farmers stated:

"As more produce was required, more growers were invited. That is why more and more farmers from different ejidos²³ began to participate in SFP/PO. [SFPS04PR]

In the further expansion of the network of suppliers, San Francisco Produce founded a coordinating firm. Concretely, this co-ordinating firm aims to identify farmers based on the characteristics of marginalisation and living in rural areas. They focus on looking for smallholder farmers who struggle

²³ It is legal term in Mexican legislation where a group of people share a considerable extension of Land

economically to become suppliers. They also support farmers to join the network based on serendipity and their own decisions. As the area coordinator described:

“The coordinating firm is always seeking to benefit the profile of farmers that SFP/PO wants, a farmer who had not had that opportunity; it would be very hard for them to access the export market. Then all people that work here for farmers to stay in the market and therefore within sight of customers”
[SFPS01COOR_1]

Serendipity played an important part in identifying most farmers, specifically cooperatives. For example, Firm 4, the oldest and biggest cooperative, had an issue with an American broker who never paid them following a shipment of produce. The founders of SFP offered help to those smallholder farmers to find this broker and get their money. In this way, the founder of SFP proved to the farmers his intentions to help. Another example is Firm 2. This firm is formed by a group of smallholder farmers and is the second oldest co-operative. The coordinating firm identified their circumstances of subsistence and isolation and had no connections with markets nor support from any other actor. In addition, there was a need for more produce due to growing demand at that point in time. In the case of firm 5, farmers had lived on charcoal production. The farmers of firm 5, produced charcoal out of an endemic and protected cactus. This activity provided only an unstable income. In addition, this activity had a negative impact on the environment.

In the case of firm 8, farmers had previously emigrated mainly to the US and had no economic activity. Both, firms 5 and 8 decided to contact SFP/PO to begin talks with the intention of participating in production activities. However, firm 3, a single farmer, had a particularly eventful integration. The

farmers helped the founders of SFP as they were driving back to The US and had a car accident. By coincidence, the farmers witnessed the accident and help the founders. Both those farmers and founders became aware of their circumstances, one was a broker and the other were farmers in need. In exchange, the farmers received help by inviting them to be part of the value chain.

In addition, two other single farmers actively sought an opportunity to be part of the network. Firm 6 knew the group before but never had any relationship with SFP/PO. What motivated the single farmer of firm 6 was his desire to carry out different agricultural practices. Once he had available land, labour force, financial resources, and the contact information, he made the decision to contact the broker of SFP/PO in San Francisco, CA, USA, and see the possibility of future participation. Finally, firm 7, the farmer was previously the production manager of Firm 5. He was given the opportunity to grow on his own, with the aim of helping other single farmers as well.

The narrative of the founders and farmers sheds light on how famers and communities which had financial and economic needs were embedded in the foundation roots of the value chain. The Global Buyer proves his intention by assisting farmers in any difficulty they experienced by expanding the network and creating a coordinating firm. As such, the coordinating firm achieves additional social purpose to smallholder farmers with a staff of technicians such as an agronomist, entomologist and geneticist form the coordinating firm and carrying out main responsibilities i) supervising the implementation of agronomic season programme, ii) managing the genetic improvement programme and iii) facilitating the farming operation of smallholder farmers in southern Baja Peninsula and Sonora. Additionally, the coordinating firm

facilitates the operation of every farmer, providing technical assistance, being the eyes of SFP and assisting and supervising farming operations.

5.2.1 Smallholder farmers as suppliers: Cooperatives, Co-operators and Single Farmers

During the interviews, the San Francisco Produce/Peninsula Organic's area coordinator emphasised the philosophy of the value chain, which is a building block of the network:

"The philosophy of San Francisco Produce/Peninsula Organic, a personal touch of the founder and his wife, is to help smallholder farmers, who are in economic difficulties and have the will and desire to work" [SFPS01COOR_1]

This quote indicates the intention of providing economic opportunities to smallholder farmers. SFP/PO structures its network with two types of organisations, formal and informal. Within the formal organisation, there are 1) Societies of Social Solidarity (SSS) and 2) Single Farmers. According to Mexican legislation, SSS are a type of commercial organisation which aims to constitute collective assets. The partners must be Mexicans who belong to communities of shared land called Ejidos, rural communities, farmers and people who can work and give part of their earnings to a fund for social security, and who will be able to conduct business transactions (Congreso de la Union 1976). These types of organisations have a framework that allows a group of people to have an equal number of shares, participation, and rights to form a board that will make decisions to benefit shareholders. The second type of organisation is Single Farmers, which are defined as farmers with more than 10 hectares, constituted as a private person with legal authorization to conduct business transactions.

In addition, informal organisations are 1) Co-operators, and 2) Associates. What characterises an informal organisation is that smallholder farmers themselves achieve the integration of other smallholder farmers. Smallholder farmers look for other smallholder, subsistence who live in rural areas. For example, Co-operators are smallholder single farmers that are linked with SSS or single farmers. Co-operators carry out production activities under the same organic production system and have the same benefits as if they were partners of SSS. Co-operators can also work under the supervision of a single farmer as if it were an extension of them. Associates, on the other hand, is a type of single farmer that carries out production activities under the supervision of a co-operator and are under their responsibility. In this type of organisation, Associates have no rights or benefits other than producing crops under the supervision of Co-operators.

San Francisco Produce/Peninsula Organics achieves social purpose with both types of organisations. Through formal organisation, the network of smallholder farmers focuses on providing economic opportunities by complying with the legal framework of formal organisation. With formal organisations, the network ensures benefiting communities by ensuring collective assets for farmers and access to social security services such as healthcare. Through informal organisation, smallholder farmers themselves carry out the social purpose by integrating other farmers under the same circumstances.

The director of international farming in SFP further expands the social purpose of the network:

“Well, it’s very easy, I mean. The easiest way would be to work with large-scale farmers with consolidated production, large

extensions of land. We could focus on this and take most of our production from them and leave few smallholder farmer [...], but we don't do it because we have a commitment to them [smallholder farmers]". [SFODIF01]

This narrative, elucidates the explicit commitment and interest of providing opportunities to smallholder farmers and making them productive and helping them have a stable income, which underlines the social value of the San Francisco Produce/Peninsula Organics. Despite the technical complexities of carrying out farming operations throughout a dispersed geographic region, SFP/PO tries to succeed in every zone SFP/PO manages.

5.2.2 Connections

One of the arguments of Global Value Chains literature says that suppliers located in developing countries do not have access to activities needed to compete in the global economy nor guaranteed access to higher added value activities (Navas-Aleman 2011). Contrary to this argument, San Francisco Produce/Peninsula Organics provides economic opportunities between the actors in the value chain (smallholders, coordinating firm and SFP) through three connecting strategies: (i) sales strategy, (ii) production strategy and (iii) branding partnership.

The social purpose of these connecting strategies is based on distinguishing smallholders as partners of the value chain by transcending the mere idea of farmers as suppliers, strengthening their position in the GVC, and levelling up their importance as actors in the chain vis-à-vis global buyer. These connecting strategies go beyond production, the strategies associate marketing and branding with the strategies to provide high returns to smallholder farmers.

For example, the coordinating firm in Mexico designs the *sales strategy*, and smallholder farmers execute it. Smallholder farmers need to make efforts to design and manage what they need to take advantage of producing crops for export. As the area co-ordinator states:

“I oversaw designing, managing crop. Obviously, there were people from the commercial department in SFO. From the very beginning, they told me they needed a certain number of pounds (lb). Then based on that projection, I can tell how many seeds I will need”. [SFPS01COOR_1]

The implementation of the sales strategy is directly linked to the selection of the variety of crops (tomatoes in this case) to grow. For example, the area co-ordinator said that the selection of varieties is important because they will determine what your next steps will be. He explained that there are two types of tomatoes they use, determined and undetermined. The basic difference between the varieties is the time they take to produce. For example, once transplanted, determined varieties usually take 20 days, whereas undetermined take from 30 to 35 days to produce tomatoes. He further elaborated on the sales strategy by saying that *“you can start with an aggressive stage of determined tomatoes variety and afterwards continue with undetermined tomatoes variety to finally close with determined”*. For example, the strategy is operationalised by selecting determined and undetermined varieties to respond on time to the demand of produce.

In addition, production strategies are related to sales strategies due to the impact they have on the availability of products in a high demand season, something which delivers better profitability for farmers. As indicated, the production strategy considers the varieties of crops. According to the area co-ordinator, there are three types of tomatoes varieties: determined,

undetermined and semi-determined. The differences among varieties (determined and undetermined) lie on the time to mature and to provide the first harvest, directly impacting the availability of produce during high pick of the season as the next quote indicates:

“For strategic purposes, determined tomatoes are more precocious. That is that with them you have production within 65-70 days and undetermined tomatoes take around 90 days”.
[SFPS01COOR_1]

This quote makes it clear that the purpose of deciding on, and therefore, using a specific type of variety of tomatoes, is to respond as efficiently as possible to future demand. This means that smallholder farmers are getting market knowledge regarding volume of products needed, and the Global Buyer provides the varieties produced. This is central to the strategy, due to the window of opportunity during autumn, winter, and spring in the USA to produce high yields of organic produce and take advantage of the increased price, given shortages, and high demand. Consequently, the appreciation of the brand *SFP/PO* given the availability because of the sales strategy benefits both parts, farmers of *SFP/PO* and *SFP*.

Compliance with organic standards concerning the use of organic inputs helps build up confidence in consumers that *SFP/PO* responds to the expected features of an organic product in every zone. The compliance to the expectation of customers is another element of the production strategy to building up confidence due to incorporating the perceptions of health aspects of organic produce and taste.

Therefore, combining these three elements – deciding on crop varieties, compliance to organic standards, and meeting customers’ expectations - in

production strategies, shows how complex efforts can be achieved, and displays the interconnectedness between the farmers, the coordinating firm, and the trading firm. For example, the explanation provided by the area coordinator indicates that San Francisco Produce in the US is in constant communication with their customers, making them aware of new trends in the market:

“People that work in SFP in the US are constantly visiting the markets [customers] reviewing trends. If there is something new, then we look for ways not to be left behind, but the idea is to have the programme for us to lead in trends”.
[SFPS01COOR_2]

This shows how thorough the sales and production strategy must be to provide a rapid response to any window of opportunity to commercialise produce and meet the expectations of customers to lead in their niche market. In addition, both parties, smallholder farmers and San Francisco Produce share the brand San Francisco Produce/Peninsula Organic (SFP/PO), as the quotes indicate:

“The trading firm registered in the US San Francisco Produce (SFP). In Mexico, Peninsula Organics (PO) is registered in Mexico by one of the cooperatives”. [SFPS01COOR_1]

This quote indicates that farmers are more than producers. The connection transcends merely supplying produce. Smallholder farmers and the Global Buyers own the brand, an added value activity with which SFP/PO achieves social purpose to participating farmers. Contrary to the logic of dispersing production activities associated with low value, the brand SFP/PO and its ownership are shared across the value chain and geographic locations. A

recurrent aspect of the social purpose of partnership was the selling of shares of SFP to farmers so all participating farmers more equally share that brand.

Finally, SFP/PO achieves social purpose through three additional mechanism: i) transparency, ii) visibility and iii) commitment. The mechanisms aim to create reciprocity among smallholder farmers and the Global Buyer, which strengthens the commitment among them because of their stable relationship as partners in the value chain. For example, transparency in the business deal is the basis on which the Global Buyer and smallholder farmers operate. The business deal consists of taking 20% of the transaction for the Global Buyer which is San Francisco Produce. The rest 80% goes for all smallholder farmers once the reports of poor quality from the Global Buyer, customers and samples (from USDA) are subtracted from the 80%. Visibility is an element of building up a long-lasting relationship and sustaining production between the Global Buyer and smallholder farmers. Farmers have access to data bases to follow up on their shipments, arrival date, time and place, to whom their produce was sold, and at what price. The visibility reassures farmers on how much money they may receive as payment and obtain feedback on the quality of their produce. In addition, commitment seals the social purpose between the Global Buyer and smallholder farmers. The Global Buyer is committed to trading produce of smallholder farmers at the highest price possible so that they can benefit financially.

Throughout southern Baja Peninsula, farmers stated that contrary to the monthly payment other farmers in their communities' experience, part of the commitment of the Global Buyer is to give economic stability due to its fourteen-day payments in US dollars. Finally, commitment is put into practice in sharing the risk in business with farmers. It is a differentiation element in

interorganisational relationships in value chains taking financial responsibility of 50% of incidents and accidents. This is the explicit mechanism that creates reciprocity among smallholder farmers as suppliers and the Global Buyer.

In summary, the foundation roots of SFP/PO consist of integrating its social purpose of providing economic opportunities for smallholder farmers in Mexico. SFP/PO achieves social purpose by building a network aiming for smallholder farmers who live in marginalised and remote rural areas. SFP/PO further achieves its social purpose by taking responsibility for supervising the organic operation of farmers and facilitating farming operations. In addition, they achieve social value by structuring a network of formal and informal organisations. Through this network structure, SFP/PO connects smallholder farmers with sales and production strategies and mechanisms of transparency, visibility and commitment. All in all, providing economic opportunities creates reciprocity among partners in SFP/PO.

5.3 Improving smallholder farmers' living conditions

The improvement of smallholders' living conditions is within the social purpose of SFP/PO. What characterises the agricultural sector in Southern Baja is the shift of land and labour towards tourism, due to the lack of financial aid and financial opportunities, especially when it comes to exporting produce. The region, however, is known as an international tourist destination, where the value of land property is high. Consequently, farmers are pressured by real state agencies to sell their land for future tourist developments, changing their economic activity. As previously mentioned, other farmers face different circumstances, where their economic activities generate insufficient income to

support their families. Therefore, they are forced to leave their land and migrate either to touristic places where they can seek employment in restaurants and hotels or migrate to the United States.

San Francisco Produce/Peninsula Organics claims to be involved in keeping farmers on their land and in sustaining traditional farming communities (Lotter 2004). Therefore, the value chain achieves social purpose by creating economic incentives with production of organic crops for smallholder farmers to stay in their communities and work their own land. Improving smallholders' living conditions is the result of providing economic incentives to remain in their communities and work their land rather than move to cities for employment. This is particularly relevant given the circumstances that surround the agricultural sector in Mexico and Southern Baja Peninsula.

The director of international farming of SFP/PO said that the objective is that farmers make a living shipping organic produce out of their communities. Consequently, as farmers possess land, an asset valued either as real estate or farmland, it is important to have economic incentives for them to remain in their communities and use their assets. One of the farmers said:

"It is all about money going to the pockets of farmers; that their patrimony grows in land, agriculture, and other things where we can gain more". [SFPS04PR]

In farmers' understanding, the incentive is financial, and the value of money resides in the possibility it gives them of making a living from working their own land. For example, working on their own land allows them to generate an income and with that satisfy their needs for what they call 'decent life'. In the understanding of smallholder farmers, a decent life is to be able to cover the needs such as food, social services (running water, electricity, education

for their children and medical services), and communications such as cell phone and internet. In addition, the former area co-ordinator of SFP/PO said:

“There are farmers that make little or no money. There are others that make between 35-55 thousand USD a year.”
[SFPS04IT01]

This quote shows that not all farmers make the same amount of money, some make no money at all. In general, farmers state this situation is due to factors that are out of their reach such the weather like hurricanes, pests and plant diseases. However, as the director of international farming said, *“we have a commitment with them”*. This indicates that despite the circumstances, farmers expressed changes in their living conditions, shedding light on the social value.

Q1: *“The model of organic agriculture is for tackling marginalised areas, support family income. Our zone is considered marginalised [...] for you to understand, nine years ago, there was nothing, and we started the farm”*.
[SFPS05P]C]

Q2: *“You have neighbours that have organic certification, you have labour force in the locality, and there is much land in idle, idle people as well”*. [SFPS07]C]

These quotes show farmers acknowledge themselves as a vulnerable group, however they also are active agents of the social purpose. For example, Q1 shows, that farmers associate themselves with a social purpose, and therefore what they grow under the organic farming system and sell to the value chain with added value, the group of farmers, their association with San Francisco Produce and coordinating firm have the goal of improving their living conditions. Specifically, they see social purpose in doing organic agriculture through their own efforts and consequently they are conscious of the

improvement farmers experience through contrasting their living conditions in previous years.

For example, for firm 5, charcoal production was the activity they had previously undertaken. This was considered low value and unsustainable due to the deforestation of an endemic tree, a source of charcoal production. By joining the value chain, farmers instead began to grow vegetables for export markets, an added value activity, using their own land, running their own cooperative and staying in their community, becoming self-employed. For single farmers, Q2 indicates that although they are not necessarily under marginalised conditions, their participation is still within the main goal, given the benefits they bring to the community they are in, i.e. giving jobs to people and putting land to work which otherwise would not create any social benefit. Specially, their motivation is based on their awareness that other farmers, under the same conditions have been able to become export farmers. Whilst farmers in cooperative have a sense of belonging in pursuing of the social purpose, single farmers too have purpose. As the one indicated "*My intention was to start in organic farming based on the need to change the production model in Mexican agriculture and find a business model that was more sustainable. [SFPS07]C*". In summary, interviewed farmers acknowledge what they do and the benefits of their activities. Farmers' accounts indicate that they perceive an increase in their income, where they were making thirty thousand dollars a year.

In addition, carrying out the ethical philosophy of SFP/PO means giving farmers the opportunity to join as suppliers improving their living standards, becoming the social justification of the farming operation. Both single farmers

and those in communities view themselves as active agents of the social purposes they have undertaken.

5.4 Value added activities: Teaching organic agriculture practices

In the case of agricultural global production, Goldfrank (1994) stated that crop production is considered a low value activity due to its labour-intensive nature, highlighting low wages as an attribute of developing countries in agricultural global production. In developing countries, suppliers have low production capabilities. In this context, Gibbon (2001) argues these suppliers require complex information and assistance for meeting changing product specification. Particularly, smallholder farmers tend to be marginalised from global production. Daviron and Gibbon (2002), argue that production concentrates in a small number of large farmers which are considered capable of complying with requirements in terms of quality, technological change, and product differentiation. Within the realm of requirements, Barret et al. (2002), argue that certifications become an obstacle for smallholder farmers, given that certifications are seen as markers of quality and sophistication, adding value to produce.

Contrary to the conception of Global Value Chains, SFP/PO shows that added value crop production activities can be carried out in developing countries. SFP/PO concentrates production of organic produce in many smallholder farmers in developing countries, such as Mexico. In these Global Value Chains, the production of organic produce is an added value activity because its environmentally friendly and for certification in organic production. In addition to crop production, smallholder farmers carry out other two value

added activities such as branding and produce development e.g. new varieties. As opposed to conventional produce, organic produce is characterised by having these attributes and costumers that appreciate them are willing to pay an increased price for produce.

SFP/PO provides smallholder farmers with information on specifications and assistance to meet product specifications. In these value chains farmers develop production capabilities of high added value. As selected pictures (Image 1) of organic crops shows, in San Francisco Produce in the US as well as in Mexico:

Image 1: selected pictures crop fields



Source: fieldwork data 2015. Left picture shows fields of Rosemary in SFP, in San Francisco, CA. US. Right picture shows fields of Rosemary in PO, in San José del Cabo, Mexico –

As opposed to outsourcing crop production to Mexico, what SFP/PO does is to carry out production of organic crops in both geographic locations in the USA, where San Francisco Produce is located, and Mexico, where Peninsula organic farmers are located. Concretely, the picture show there is a complementarity in activities. This means that organic crop production with branding is carried out in Mexico as well as in the U.S.A.

In creating value in crop production activities, SFP/PO establishes a production strategy which involves the efforts of all participating smallholder farmers and the coordinating firm. The strategy begins by understanding the organic principle, which consists of soil nurturing. This principle is linked with environment attributes of organic production. For example, the area co-ordinator of all farmer in Southern Baja Peninsula said:

The whole strategy begins with soil preparation.
[SFPS01COOR1]

This quote shows that this strategy is not simply about following instructions, compulsory to being a part of SFP/PO, but it's actually a principle that farmers understand. For this value chain, the soil is one of the fundamental aspects of crop production. It's observed that this strategy is implemented in all participating farmers in southern Baja peninsula, but also in fields located in the USA. In line with this, SFP/PO sheds light on how to view value creation for production activities carried out along the value chain and among farmers., As the area co-ordinator explained:

"An organic farmer must build soil. It sounds easy, but when you take it seriously and got to the bottom of the concept, it is complicated. It shows your perseverance, consistency and discipline. As a farmer, especially modern farmers, they rent and suck up the land to then move to other places".
[SFPS01COOR_1]

This quote reveals that for the value chain, soil building must be understood to be mastered. When smallholder farmers understand the principles of soil building, it shows they differentiate themselves from conventional farming. This sheds light on how important a broader understanding of the principles of production strategy is, and provides a counter-argument to the notion that

lead firms located in developed countries are dedicated to high-value activities whilst outsourcing production of crops to developing countries to generate value by taking advantage of low wages.

5.4.1 Engaging farmers with Technical support

SFP/PO engages farmers with technical support to teach organic farming practices. The engagement with farmers is carried out through constant follow ups from the coordinating firm and its staff. The social purpose is embedded in engaging with farmers, in the close relationships between smallholder farmers and the technicians from the coordinating firm. As the area co-ordinator and entomologist stated:

Q1: "It is very close follow up and companionship. I personally, have realised that after setting up the operation of any farmer, if it's not you who have to be immersed in the process, someone who dominates the topic and is receptive with farmers" [SFS01COOR_1]

Q2: "When I started working for SFP/PO I moved out to town where I could be close to farmers so that I could move wherever I was needed". [SFPS01DRF]

In Q1 the relationship is present in their narratives and it is a necessary element to engage with farmers for them to grow organic crops. Yet, as a leader, the coordinating firm shows awareness of the relationship as an element and is translated into close companionship where he is fully involved in the operation of smallholder farmers to increase efficiency, promote and improve quality, and productivity in their farming operation by providing his experience. Likewise, in Q2 of the entomologist shows awareness of the relationship and the need for him to be wherever he is needed. Therefore, being committed to farmer is the fundamental basis for engaging them.

Furthermore, in farmers' perspective, closeness is perceived as a reassurance so that they feel confident that what they do is done in accordance to organic principles. The following quotes shed light on farmers' perspectives:

Q1: *"They came and started supporting us to begin our operation". [SFPS02VP]*

Q2: *"The relationship is very close. They never stop supporting you". [SFPS06IR01]*

Q3: *"They only saw me once and supported me financially. Not everybody supports you this way, with inputs and seeds". [SFPS07]C]*

Q4: *"The trading firm helped us financially to start the operation. [...] once he realised our potential he sent over his operation team". [SFPS08CEO]*

Farmers' narrative underlines what it means to them to be engaging with the coordinating firm as well as the Global Buyer. For example, Q1 illustrates the supportive characteristic of engagement with farmers. During the interviews, all participating farmers acknowledged they have advantageous circumstances compared to that of other farmers in the region. Engagement is established with the support they receive at the very beginning of their operation. For example, Q2 indicates that being with farmers from the early stages is valued as support and is not perceived as special treatment for a specific group but rather as a rule for all farmers. In addition, Q3 and Q4 also indicate that financial support is another aspect of engagement that with companionship reiterates how serious and committed leaders are, especially when they expressed that on the one occasion they had met with the founder of SFP they had offered immediate support.

Therefore, supporting farmers in the beginning of their farming operation is based around the supply of inputs and technical advice. This support is reinforced through engagement with farmers. Cooperation between participating farmers, the coordinating firm and the Global Buyer reflects a collective commitment, which is a necessary element of the partnership. This helps consolidate the closeness of the relationship amongst participating farmers. Constant follows up are perceived as a reassurance measure to increase confidence in their undertaking that things are done in accordance with organic principles. The engagement of farmers is important in the description given that in Global Value Chains, interactions with suppliers have the purpose of overcoming complexities of production activities (Gereffi, 2005). Particularly, when it comes to highlighting the fact that achieving the social purpose of teaching organic farming practices, SFP/PO attains social purpose by engaging with farmers to the extent in which it overcomes the complexities of production activities. This means that the engagement becomes an embedded social feature, which is difficult to codify and therefore replicate.

5.4.2 Soil building, Fertilisation and Biological Control

Global Value Chains literature emphasises the compliance with strict requirements from Global Buyers with a direct impact on smallholder farmers (Danse & Vellema 2007). In contrast, SFP/PO teaches farmers three basic organic farming practices²⁴: soil building, fertilisation, and biological control. SFP/PO also creates value by managing the production to increasing its long-term productivity by making technology and knowledge within the reach of

²⁴ SFP/PO has a basket of culinary herbs [chives, mint, tarragon, and basil], cherry tomatoes, garlic and green beans organically grown.

smallholder farmers. They claim to teach these three basic organic farming practices by making farmers understand and apply the organic principles in crop cultivation²⁵ which increase production, quality, and nutrients in crops. To describe these practices, I use two sources of information. First, primary data from interviews conducted with the current area co-ordinator of SFP/PO in southern Baja peninsula in charge of all farmers in the geographic located. Secondly, I use secondary data from research conducted by former area coordination for southern Baja peninsula for SFP/PO and academics from CIBNOR²⁶ to highlight the value in these activities.

Soil building is a principle in organic agriculture. SFP/PO applies it because of the effects on the crop to be grown. As stated by two researchers that studied the fields of participating farmers:

“This is the basic concept around organic agriculture and consists of providing the soil with all necessary nutrients for microorganisms to develop”. [Murillo-Amador et al. 2006 Pg.37]

Other researchers stated:

“One of the most relevant aspects of organic agriculture is [...] soil fertility, which depends on biological interactions of microorganisms, plants and atmosphere. This represents a qualitative change of the simplified concept of chemical fertilisation and leaves behind the idea of soil as a backup support for plants which are fed on chemical fertilisers”. [Navejas-Jimenez 2006 Pg.75]

²⁵ Cultural labours are activities for maintenance that are carried out throughout the production of a crop.

²⁶ CIBNOR in Spanish stands for Centro de Investigaciones Biológicas del Noroeste (Northwest Centre for Biological Studies)

“Soil fertilisation is considered a biological system that has and generates life by microorganism action. From the agricultural perspective, soil fertility is diminished by the loss of organic matter from oxidation process, high rate of nutrients extraction by crops and lixiviation”. (Beltran-Morales et al. 2006 Pg.159)

These statements reveal that soil building, apart from being a principle in organic agriculture, has attributes to be followed. On the one hand, it is an element that differentiates them from conventional agriculture, highlighting the holistic attributes it contains. On the other, it stresses the importance of it being applied due to its effects on the crop to be grown. Technically, the soil is viewed as a biological system in which all necessary nutrients are put in place for generating microorganisms. This in turn decomposes the organic material, which is beneficial when used on the crops.

Furthermore, soil building benefits participating farmers in three main aspects, as one researcher states: Fertilisation in organic agriculture must meet three requirements: a) improve soil fertility, b) economise non-renewable resources and c) avoid contamination (Beltran-Morales et al. 2006, Pg. 161). A peculiarity of soil building is that fertilisation potentially saves economic resources for farmers and prevents contamination, that is, it helps soil keeps its nutrients for the crops.

Consciousness and understanding are an important aspect of soil building as production strategy. It is important that participating farmers take the view of soil as a living entity that needs to be fed for it to sustain life. The area coordinator in charge of southern Baja Peninsula said:

“Regarding the field, as part of soil preparation and complying with organic standards. And sometimes referred as

mandatory. It is mandatory. However, the thing here is that farmers do it consciously". [SFPS01COOR_2]

"You must understand that you comply with organic standards. The ideal thing to do is to use green manure. You can mix corn, beans, something that needs lower water consumption. This will prompt the growth of beneficial microorganisms". [SFPS01COOR_2]

For the area co-ordinator, who supervises the implementation of production strategy, the value of compliance with an organic standard relies on the conscious efforts of farmers, so that they develop an understanding of how soil works as a living entity that needs to be maintained. The area co-ordinator mentioned during several interviews that for farmers, building soil is the cornerstone and is therefore a principle that must be in the minds of all farmers and mastered in practice. In his view, this strategy is a matter of principle and identity:

"Organic agriculture is based on soil. The soil is our altar, our cornerstone. Any farmer that says that they grow organic crops and their soil is tired; they are not organic farmers". [SFPS01COOR_3]

Therefore, for farmers in SFP/PO, soil building is also a matter of meaning. The area co-ordinator sees himself as an active and committed member of the network in implementing soil fertility. For him, soil is central to organic agriculture, and they foster a closer relationship with it. They see it as a living entity that supports and contains life in the form of microorganisms, and how this relates to the crop. Arguably, for farmers in Mexico, understanding this principle means that they must be capable of demonstrating in practice that their soil is fertile.

For participating farmers, soil fertilisation is materialised with “feeding” the soil with green manure²⁷. As one of the researchers said:

“Green manure is a practice that highlights the beginning of a new production cycle in the field. In addition, it is a requirement for a farmer to participate in the new production cycle. This practice is valuable given that it provides nitrogen, organic matter, minerals, with which it will cover and protect soil from erosion and natural phenomena.” [Murillo-Amador et al. 2006 Pg. 31]

As with the quote from the area co-ordinator regarding soil being the altar in organic agriculture, this quote highlights how soil must be looked after due to the value it possesses as a micro system for creating key nutrients and a protective vegetative cover. In addition, it strengthens the soil by making it robust, working as a cover for the crop to maintain enough humidity. This is confirmed by the statement of another researcher:

“Green manure as an alternative organic manure. Green manure decreases erosion, keeps high rates of water infiltration, roots leave holes in the soil so that the cover prevents degradation and seals the surface, reducing the speed of water runoff. Pg. 158” (Beltran-Morales et al. 2006)

Soil fertilisation and its practice with green manure have a purpose that reflects the value of production activities strategy that all participating farmers observe, are aware of, and understand. This activity is divided into three steps: 1) soil preparation, 2) selection of varieties and 3) incorporation. These three

²⁷ Green Manure is a fertilizer consisting of growing plants that are ploughed back into the soil

steps reflect observation, consciousness and understanding. The purpose of green manure practice in soil preparation:

Soil preparation

Green manure practice begins with tracking to avoid soil compaction and crush weed from the last crop. [(Murillo-Amador et al. 2006)]

Varieties

To grow green manure, it is used a variety of beans called Yorimon. This plant is well adapted to Baja's environment; it provides a fair amount of green foliage. (Ibid, Pg.31)

Incorporation

Then green manure is incorporated twenty days before transplanting the crop throughout tracking. (Ibid, Pg.32)

This process is simple to perform. However, it requires astute observation by farmers (I will further discuss this in subsequent sections). The idea is that farmers think it will have long term benefits, and it marks the beginning of a new seasonal programme for which they must prepare the soil. For example, the tracking of the soil for preventing compaction aims at airing the soil, make it soft and enrich it with plants or crops that remained from last season. Selecting varieties for green manure requires an understanding of what works best. Yorimon beans, according to researchers, happen to be the most effective due to their ability to adapt to Baja's conditions and its capacity to provide a good deal of green foliage, which goes in line with making soil robust. And the incorporation of green manure into the soil with enough time for the soil to absorb the nutrients by the interaction of small insects that will decompose it to facilitate soil enrichment. This fifteen-day period has its purpose, as the area co-ordinator said:

“You have to wait fifteen days after incorporating. Why? Because if you transplant immediately, you will have plenty of life [organism] that is not necessarily what you need. For example, ants break down proteins and will go over what you just transplanted. Therefore, you must incorporate and wait long enough like I said, fifteen days” [SFPS01COOR_1]

This quote reflects the level of understanding the way soil works. For example, giving the soil between 15 – 20 days for ants to break down proteins. Consequently, if there is less time for incorporation, the risk is having processes that will not necessarily benefit the crop.

Water management is another purpose of this activity. Given the shortage of this resource and the dry conditions of southern Baja peninsula, as Dr Murillo Amador stated:

“For organic agriculture water management is an important task, but it is not part of the standards. This is because if standards are followed such as incorporating green manure, compost, and crop rotation and association, it will result in a well-structured soil, with the benefits of better water retention and appropriate conditions for plants”. [Murillo-Amador et al. 2006 Pg. 40]

“The benefits of water management are the increase of sugar in fruits, improving their quality”. Pg.40 [(Murillo-Amador et al. 2006)]

This quote reiterates the importance in resources management due to weather conditions in southern Baja Peninsula, which make horticulture, costly, given that water comes from underground aquifers. For water supply, pumps are used, that ultimately adds up production costs (Ibid). With regards to cherry tomatoes, the crown crop of SFP/PO, water management appears to have a

significant role in the quality of tomatoes, especially when it comes to enhancing the sweet flavour.

Biological control is another activity which comes right after green manure is incorporated. It consists of growing the so-called protection crops, as Dr Murrillo-Amador stated and the entomologist responsible of biological control in SFP/PO:

“It is a cornerstone in organic agriculture. In organic agriculture the base is biological control. Here we realised that there are many natural enemies”. [SFPS01DRF]

“This is done to protect the crops with abundant foliage and flowers for [beneficial] insects to be attracted”. Pg. 32 [(Murillo-Amador et al. 2006)]

This practice is also a principle in organic agriculture. During the interview, the entomologist stated that they had found a sufficient number of beneficial insects for a biological control to be established. In this respect, the purpose of this practice is growing protective crops to create necessary conditions to attract insects that will nest in them, and which will ultimately eat those insects. As stated by the entomologists:

“Biological control is to use the natural enemies, insects that eat insects”. [SFPS01DRF]

This quote reveals the relationship there is between taking advantage of natural resources to preserve the natural aspect of the organic agriculture, and the natural aspect of the crop to be commercialised. One of the aspects of the strategy is the consciousness and understanding of this system as an interaction of living organisms as indicated by the entomologist:

“A pest is a concept misused by humans. In nature there are no pests, in fact, there are consumers, which are phytophagous, that when affecting crops, then we can talk about pests. As such, there are other organisms that can consume [eat] them”.
[SFPS01DRF]

“You happen to have different kinds of insects, depending on the crop. Each crop has its own pests. And there are specific natural enemies for them”. [SFPS01DRF]

“What you have to do is to apply a technique of natural enemies’ conservation, which means, given them conditions to increase the population for it to control the pest”.
[SFPS01DRF]

The actual value of biological control is sustaining life in crops that keep the population of beneficial insects big enough to maintain a balance with those that damage the commercial crops and make no use of chemical inputs. This proves that there is an understanding that insects are in their natural element, and the fact that organic crops are grown means that insects will feel attracted to them, thus the need to have other natural enemies that will control the population of those that potentially damage the quality and aesthetics of the commercial crops.

Another action of the coordinating firm and farmers is biological control. The entomologist is fully dedicated to monitoring, identifying and implementing techniques to keep a balance in the population of insects (beneficial and enemies). The entomologists said the following:

“We started monitoring with yellow traps [...] to make them attractive. We changed them every other week and checked them with microscope. With that I knew which insects we had, pest and natural enemies”. [SFPS01DRF]

“There are plenty of natural enemies. In some cases, we have moved natural enemies from one zone to another to control common pests in different production zones”. [SFPS01DRF]

“Natural barriers are lines of plants with flowers that you grow in between the crops. Any plant with a flower will attract natural enemies”. [SFPS01DRF]

As he stated, *we* show that collaboration with farmers in the fields has practical reasons. In this action, the entomologist and farmers need to know what kind of populations of insects they have and their interactions with the crops. This indicates the need for traps to collect insects, sticky or nets traps to move insects from one place to another and maintain manageable populations for biological control. It also indicates a way of designing natural barriers, either by growing crops such as corn and sunflowers or simply by mixing different herbs and tomatoes with the aim to attract insects and host them and control other populations.

Furthermore, competitive mechanisms, such as the genetic improvement programme, are actions that involve the participation of farmers, SFP, and a coordinating firm. Farmers along with coordinating firm make a proposal for SFP on a new product that has been developed because of experiments (cross-breeding) with farmers. As the area co-ordinator explained:

“We make the proposal to a group of people within SFP that is called product development, where it is discussed all related to volumes, they interview customers. Then the rest of the zones are involved”. [SFPS01COOR_2]

What he explained here are the simultaneous actions taken by all participating farmers and the level of collaboration required amongst participating firms when deciding whether a new variety should be put on the market. This also

shows how connections are evident, in terms of maintaining acceptable levels of satisfactions from customers and farmers. Only once aspects such as taste and colour, how viable it is to grow the new crop, how easy it is for farmers to manage biological control, its resilience, handling consent, and have been taken care of when formal production can begin. It is important to note that, full production does not necessarily mean that will be a product in every zone, but it will begin in one or two zones agreed upon by the farmers. Depending on how well it goes, it will then be grown in other zones.

5.4.3 Organic Certifications

In San Francisco Produce/Peninsula Organics, organic certification plays a pivotal role in creating value to crops. According to IFOAM, *Certification* is the procedure by which smallholder farmers receive written and reliably endorsed assurance that they are producing specific products in compliance with a specific standard. The process of assurance is crucial to creating consumer trust (2017). In this regard, organic agriculture practices have the purpose of *differentiation* in products, *matching interests*, those of customers and farmers, the materialisation of farmers' understanding and consequently creating value.

As the former area co-ordinator said:

"The effort of growing organic produce [...] is recognised by consumers, which is translated into a higher price or premium price that markets have managed until today". [In Murillo-Amador et al. 2006 Pg. 256]

"The increasing needs of international markets for certified organic produce is making big retailers focus on the so called organic niches for two main reasons: the promise of a premium

price and the impact on consumers". [In Murillo-Amador et al. 2006 Pg. 258]

The achievement of social purpose for farmers lies in obtaining the organic certifications, which have two aspects. On the one hand, the economic aspect resides in receiving an acknowledgement by international agencies that all produce complies with standards enabling produce to be recognised by the target market and therefore to be sold at a premium price. On the other, the social, which is linked to the economic, resides in making a profit based on the qualities certification provides, which consequently benefits farmers by giving them a high and constant income²⁸ to support their families.

To comply with the principles of organic farming and pass the organic inspections, the coordinating firm takes the lead. Coordinating farming operations throughout Baja Peninsula require the capacity to manage the entire operation of every farmer due to the scheme of group organic certification. The social purpose inherent in the organic certification activity comes from the shared effort and responsibility amongst coordinating firm and smallholders. The coordinating firm takes responsibility for the certification on behalf of the rest of farmers. This means that farmers and the coordinating firm collaborate in the design of the operation for group certification, as stated by the area co-ordinator:

"Basically, the certification agency for smallholder farmers requires an annual audit made by someone who has no direct contact with those farmers". [SFPS01COOR_3]

²⁸ The term high income is coined here to highlight that as such it is higher compared to what they were receiving before growing organic produce.

The coordinating firm carries out this duty by explaining every stage of organic production. Smallholder farmers also share responsibility with the assistant of the area co-ordinator for technical visits and recommendations. The area co-ordinator highlights the co-responsibility of explaining to farmers the stages of organic production, stating that visit of the technician, the agronomist, their recommendations, are important for the organic certification of the groups [of farmers]. Every stage of operation for certification must comply with the rules of the internal control system, and it is mandatory for all smallholder farmers and cooperatives to submit to an inspection to ensure compliance with American organic standards.

However, recommendations reflect the commitment there exists between coordination and farmers, aiming to enable farmers to pass the organic inspection effectively. The area co-ordinator states:

Q1: "Obviously, if you make no recommendation, it will not benefit the farmer, right? The farmer will not be able to comply with the organic standard". [SFPS01COOR_2]

Q2: "Collaborate precisely to get the food safety certification ahead". [SFPS01COOR_2]

Recommendations convey support and experience as to how best put into practice technical advice. It highlights the San Francisco Produce/Peninsula Organics commitment there exists for farmers to be certified and the purpose of connections among. Certification is the ultimate goal.

5.5 Summary

This chapter explores the case of San Francisco Produce/Peninsula Organics. This chapter departs from making an examination of the case using the

concept of Global Value Chains and their Social Purpose. The chapter addresses the first objective of examining the social purpose in San Francisco Produce/Peninsula Organics. The chapter focuses on the achieving of the social purpose. Particularly, this chapter addresses production activities and how the value chain achieves social purpose.

As a Global Value Chain, San Francisco Produce/Peninsula Organics grows organic crops to supply markets during offseason, based on the mechanics of the market. The value chains achieve social purpose by focusing in three aspects, i) providing economic opportunities, ii) improving smallholder farmers' living conditions and iii) teaching organic farming practices. The social purpose contained within the production activities of value chains distinguishes San Francisco Produce/Peninsula Organics from other Global Value Chains.

This case achieves social purpose by providing economic opportunities. San Francisco Produce/Peninsula Organics attains this purpose with a network structured around the inclusion smallholder farmers who live in marginalised and remote rural areas in Mexico. San Francisco Produce/Peninsula Organics concentrates production of organic produce in many smallholder farmers in developing countries. Particularly, with formal and informal organisations, which both ensure that financial opportunities are widely spread across smallholder farmers. Smallholder farmers are active actors in achieving social purpose by looking for and including other smallholder farmers in their network.

The value chain ensures that smallholder farmers improve their living conditions. San Francisco Produce/Peninsula Organics accomplishes this

purpose by creating economic incentives for farmers to stay and work their own land. The economic incentives focus on enabling farmers to satisfy their needs of housing, education and health. San Francisco Produce/Peninsula Organics further realises this social purpose by benefiting most of the communities where farmer live. Additionally, San Francisco Produce/Peninsula Organics achieves social purpose by teaching smallholder farmers organic agricultural practices, such as soil building, fertilisation and pest control. The value chains show that added value crop production activities can be carried out in developing countries. San Francisco Produce/Peninsula Organics engages with farmers with constant follow up with the purpose of improving the practices and ultimately achieving certifications to ensure premium prices for farmers.

This Global Value Chain sheds light on how the production of organic produce is an added value activity, in which smallholder farmers develop production capabilities to carry out agricultural production that is considered environmentally friendly and with certifications that add value to their produce. In addition to crop production, smallholder farmers carry out two other value-added activities, branding and product development. In the next chapter I will discuss how smallholder farmers display competence by illustrating the social elements that constitute the social learning in San Francisco Produce/Peninsula Organics.

Chapter 6: Learning Technological Capabilities in a Community of Practice

6.1 Introduction

Participating in Global Value Chains requires learning new technological capabilities. Technological Capabilities are the skills firms, specifically workers, need to carry out an activity so that they can produce or deliver a service and compete in the market (Lall 1992; 1993). Gereffi et al. (2005), point out that the learning required to effectively develop the technological capability to engage in certain value chains may be difficult, time consuming, and effectively impossible for some firms. However, Morrison et al. (2008) argue that a Technological Capability approach has a lot to teach us in terms of the micro-level processes of learning, capability building, and innovation. Specifically, a Technological Capability approach draws attention to some key features of knowledge, such as codifiability and complexity of transactions. Concretely, Morrison et al (2008) argues that Global Value Chains assume away the need for idiosyncratic and firm-specific learning strategies.

In this chapter, I argue that the San Francisco Produce/Peninsula Organics (SFP/PO) Global Value Chain, contains a social learning system where smallholder farmers learn organic agriculture as practitioners. The education process is characterised by interactions between novice and competent farmers. These interactions contain idiosyncratic elements that together, form the social learning in San Francisco Produce/Peninsula Organics. In this value chain, the idiosyncratic elements are present smallholder farmers. Wenger

(2010) argues that engagement in social contexts involves a dual process of meaning making. On the one hand, we engage directly in activities, conversations, reflections, and other forms of personal participation in social life. On the other, we produce physical and conceptual artefacts – words, tools, concepts, methods, stories, documents, links to resources, and other forms of reification – that reflect our shared experience and around which we organise our participation. Meaningful learning in social contexts requires both participation and reification to become interplay. As Wenger (2000) argued that knowing is an interplay between displaying competence and personal experience. In SFP/PO farmers show their knowing in three levels. In this community of farmers in SFP/PO, smallholder farmers have formed their own understanding of what constitutes their community, and therefore what elements of the community farmers should show to belong to it. Rather than behaving individually, farmers behave collectively as community of farmers.

For this analysis, I use the Community of Practice framework by Wenger (1998;2000;2014;2015) to examine the definition and display of competence of smallholder farmers in SFP/PO. The analytical elements of Community of Practice allow me to frame and explain how farmers, as practitioners, define competence within the community, that is the idiosyncratic elements of the social learning system according to the activities that they undertake. These analytical elements also allow to examine how farmers display competence at three distinctive levels of participation that prove that they are part of the community. This is important given that farmers must display competence in their learning of organic agricultural practices in accordance to what they themselves define is proper for the value chain.

In this chapter, I analyse how smallholder farmers in SFP/PO display competences. This is an essential component of how farmers engage in the community to gradually display their competences and thus develop their production capabilities. Blackmore (2010) states that, key to this gradual development of production capabilities are Wenger's distinctions between peripherality and marginality. Identities of participation and non-participation help to ascertain where there might be opportunities and constraints regarding learning. This means that what farmers have had as understanding of what agriculture was, in accordance to their context, changes along with their own identity. Consequently, by participating in this value chain and interacting with competent farmers, novice farmers find opportunities for learning as they are exposed to new understanding. As has been argued by other authors, members in Communities of Practice interact with one another and share experiences and understandings, the meaning of what they do in the community (John 2005).

Lave and Wenger (1991) define Communities of Practice as a set of relations among persons, activity, and world. Wenger (2000) argues that in Communities of Practice, knowing something is a matter of displaying competence. The competence is socially defined. This means that people collectively develop vocabulary, concepts, tools and ways of doing things (Ibid, p. 225). Ergo, people know things because they engage in a community. Concretely, knowing something involves displaying competence, that is to prove they can use the vocabulary, concepts, tools and understanding the way they do things in a determined way which has been socially defined. In this regard, Wenger (1998) identifies three elements which, combined, define competence in a CoP. The first element is Joint Enterprise, the collective and shared understanding among members of what the undertaking of the

community is all about. The second element, Mutual Engagement, which corresponds to the creation and following of norms and relationships among members of the community. Following the norms means being a trustful partner in the community. And, the third element, Shared Repertoire, corresponds to the use of communal resources such as language, routines, tools and stories, which are available for members of the communities.

Through these three elements, the community defines what competence is in their own context. Therefore, the analysis in this chapter addresses the research question *How do smallholder farmers display competence in the Community of farmers of San Francisco Produce/Peninsula Organics?* To answer the stated research question, I divide the analysis into two parts. First, I discuss what farmers define as competence in the SFP/PO community. In the second part, I discuss how farmers display competence and demonstrate that it is associated to the level of participation of the farmers in the community. The analysis in this chapter links to the aim of this research by contributing to the understanding of the development of production capabilities of participating farmers in the Global Value Chains.

In analysing the way farmers define competence in SFP/PO, first, I employ the three elements proposed by Wenger (1998) to examine competence as an organic farmer. I consider farmers as members of the Global Value Chains, and being a competent organic farmer is one part being a member of this chain. Firstly, I argue that the Joint Enterprise of the community is grounded on what the farmers understand as organic farming, and what it means to be an organic farmer. Secondly, I argue that the Mutuality of the community means the norms within it are based on norms of organic farming, as well as norms of mutual help that make farmers reliable in the community. I argue that within

the community the Shared Repertoire is given by a group of shared stories, languages and tools that farmers have access to, to reinforce their collective and individual identity and to implement the organic practices. Finally, I argue that this definition of competence has been collectively constructed over time as the community is consolidated.

In the second part of the analysis, I examine how farmers display competence in SFP/PO by looking at three distinct levels of participation which are directly linked with display of competence. The first level of participation corresponds to the construction of an identity of the farmers as organic farmers by understanding the enterprise of SFP/PO and through this identity they show they are part of the community. I argue that this identify construction corresponds to a participation at the periphery of the community. The second level of participation is medium participation which corresponds to the following of the norms that farmers of the community have established to do things together. The third level of participation corresponds to full participation of farmers in the community, where they understand the production activities and can contribute to the repertoire of new technical solutions for the further improvement of farmers' practices. In this way, the farmers display the higher level of competency in the community. Finally, I present a summary of this chapter and answer the research question.

6.2 Defining competence in SFP/PO

Wenger (2000) views Communities of Practice (CoP) as containers of competences which are socially defined. Gaining individual competencies is inseparable from collectively gaining competencies. In this way, members of a CoP collectively define what constitutes competence. Moschitz et al. (2015, in

Sumane et al. 2016) argue that in order to reach different stakeholders' mutual understanding and enhance the transition towards sustainable agriculture, the interactions between and within these groups need to be facilitated; they need to be able to adapt to changing contexts. Thus, I argue that, in the case of SFP/PO, farmers collectively define what makes a farmer in the community based on the shared and common understanding of the philosophy of SFP/PO, and the principles of organic agriculture. This collective definition of competence binds farmers together and holds each other accountable. Hereafter, I analyse and explain how farmers collectively defined competence by using the categories of a) Joint Enterprise b) Mutuality, and c) Shared Repertoire. Being a competent organic farmer as a member of the organisation is to internalise and follow the philosophy of SFP/PO and show an understanding of organic agriculture principles.

6.2.1 Joint Enterprise

According to Wenger (2000) Joint Enterprise is the common and shared understanding of the undertaking of the community. It includes 'understanding what matters' and 'what the enterprise of the community is' (Wenger 2010; 180). Lave and Wenger (1991), argued that Communities of Practice are groups of people who share a common pursuit, activity or concern. In this regard, the Joint Enterprise of San Francisco Produce/Peninsula Organics consists of developing an understanding around two elements: i) its philosophy and ii) the principle of organic farming. Ingram (2008) argue that it is important to develop an understanding of the dominant assumption, practices, and rules, and the ability to tie these new practices and values together. In the case of SFP/PO, understanding this philosophy and principles indicates a farmer is truly behaving as a member of the value chain.

Farmers collectively define what constitutes a good farmer in SFP/PO by developing a common and shared understanding of the philosophy and the organic farming principles.

The philosophy of SFP/PO is to be a socially purposed business operation in which smallholder farmers that live under marginalised areas participate in an organic supply chain that enables farmers to develop production capabilities. SFP/PO, as an organisation, makes the claim that it enables farmers to develop production skills to grow organic produce that are sold in the US Market. With these sales, smallholder farmers generate a monthly income which directly benefits their living conditions. In developing a shared understanding of SFP/PO, the Joint Enterprise is defined around its philosophy, an idea of a family of farmers which tacitly emerges among a group of farmers. Farmers' accounts suggest that from the beginning of their participation across Baja Peninsula, the sense of family is regarded as important and it's generally present in all geographic locations. For example, one farmer in the north of Baja Peninsula said:

"The philosophy of SFP/PO is to improve the living conditions of farmers and help them [farmers] in solving their production issues for their wellbeing". [SFP01DRF].

In the far southern tip, another farmer said:

"We were very lucky to have been invited by a visionary man to participate in a production system to export produce in international markets" [SFPS04PMB].

Both quotes show that in the Mexican context, farmers understand family as a group of people that are bound together to provide security and help when needed. For example, in carrying out their farming activities, farmers' views

are focused with the perceived support, security and confidence that only family can provide, and, it is associated with carrying on with their farming activities. Specifically, farmers embrace the philosophy because its purpose is to improve the conditions of scarcity they have experienced and places wellbeing as the main target. Consequently, farmers' perception of their participation is reinforced because there is a created expectation of improvement. When this expectation is shared by a large group of farmers, there is confidence that their efforts will attain improvements in their living conditions.

To better illustrate farmers' perception of the philosophy of San Francisco Produce/Peninsula Organics, their narratives express the difference between their situations as part of SFP/PO compared to the situation of other farmers who belong to other supply chains. For example, one interview felt particularly strongly about SFP/PO:

"it is not just trading with them like it is the case of many farmers, where brokers ask you to produce something and it's up to you if can do it." [SFPS04PR].

A critical element perceived by the farmers is the provision of advice and financial support. As farmers receive technical advice from other farmers and financial support from the Global Buyer (GB), the idea of family is regarded as a binding element towards SFP/PO. This view is supported by the perception of farmers in Baja Peninsula Mexico, that agriculture in Mexico in general, and Baja Peninsula in particular, has not received enough support from Government in terms of technical assistance nor financial resources. Furthermore, all the farmers interviewed felt that despite the presence of

government programmes to support smallholder farmers, the chances they could get the support was small.

As well as the idea of a family of farmers experienced in similar ways throughout the value chain, there are farmers that associate it with the business idea. One farmer, for example, clearly stated his position as part of the family of farmers from the perspective that his operation was also for conducting business:

“I know the founders of SFP/PO and what they do for farmers and the communities. Of course, at the end I do this also for business but also because I believe in the conservation of natural resources” [SFPS07]C

This quote illustrates the consciousness of farmers with regards to increasing the income of smallholders. This is consistent with the view of the founder of SFP/PO in which he states that *“every farmer should make hundred thousand dollars a year in profits [SFPS04IT01]”*. To summarise, the idea of a family of farmers combines the commitment of supporting farmers with technical advice and using business for profit to increase the income of smallholder farmers.

The shared idea of a family of farmers is not free from disagreements. However, such disagreements do not undermine the idea of a family of farmers and partnership. Farmers are motivated to find strategies, especially to prevent production losses. During the growing season, quality requirements vary from strict to light. The critical point is when demand drops, this results in the dumping of produce either in the US or in Mexico. A farmer put it this way: *“I’m the one who loses” [SFPS05P]C*, in the case of dumping produce by customers in the US. This situation arises when demand drops which the

quality of produce tends to be very high and thus its criteria is strict. Also, when dumping produce in Mexico²⁹, because of low demand, farmers argue that processing the produce as tomato paste or creating a lower line of specialty produce could work as an alternative to losing the crop. For example, when interviewed, farmers have unanimously held the view that producing by-products, such as tomato paste or other lines of produce which might potentially be accepted in the American market, is a good thing. These two proposals have been discussed with the global buyer. However, at the time of the interviews neither project had started.

Risk sharing was another element of the family of farmers. It is a general perception that despite the losses, participating farmers and the Global Buyer have shared losses and risks. Farmers regard risk sharing as part of the idea of family of farmers due to the co-responsibility taken by every participating farmer, as opposed to the situation of other farmers who participate either in the local market or in other value chains, where the risk is on them. For example, one farmer said:

“Last year a truck full of produce had an accident on its way to the USA, the broker [global buyer] absorbed 50% of the losses, whereas the rest was absorbed by all of us [all farmers that shipped produce in that truck]” [SFPS03CM01]

As they are part of an organic crop value chain, farmers externalised the idea as philosophy of SFP/PO and compare their situation with that of other farmer that participates in different value chains, where the risk is fully absorbed by

²⁹ Dumping produce in Mexico means participating farmers either leave produce in the field or use it to feed their cows on their farm. It does not mean other farmers affect the price that SFP/PO farmers get.

the farmer resulting in economic losses for them and putting at risk their financial situation and their participation in the market.

A common view is the use of different range of agricultural inputs that enables the creation of value for produce. The area co-ordinator of southern Baja Peninsula said: *“as partners, if one of the farmers wants to use a new input I have to know first, run all the procedures to make sure it is safe before we all can use it”*. In this view, farmers collaborate to ensure the correct use of organic inputs, so that organic standards are consistent. Maintaining these standards ensures, farmers preserve their competitiveness in the organic retail markets in the USA. Furthermore, farmers carry out agricultural activities in a collective effort to promote the conservation of nature in a way that inputs help sustain life in the soil and as result, all farmers together understand the philosophy, the enterprise of SFP/PO.

In line with this philosophy, farmers establish a link between organic farming principles and the philosophy of SFP/PO of helping farmers. This view surfaces mainly with the case farmers make about working with a group of organic farmers. One farmer said: *“I believe that the plan of organic agriculture is to help families.”* [SFPS05CM]. There is a common interest in that all farmers improve their economic and social stability by increasing their yields. For example, in farmers’ understanding of organic farming principles, a common view is that organic standards are to be regarded as full conscious act, not an obligation. One farmer put it this way:

“The organic thing [organic farming] is a daily job, about learning how the plant grows, understanding the plant’s behaviour. If you don’t dedicate your time and yourself to understanding the behaviour of plants, you hardly be able to get to good part” [SFPS08BS]

The quote illustrates dedication and observation as two elements that show consciousness of the principles of organic agriculture. Participating farmers in Southern Baja Peninsula Mexico were previously conventional farmers, *getting to good port* means understanding how to manage the crops in terms of fertilisation and pest control. For example, the *organic thing* sheds light on importance of embracing into practices, as learning is required. Learning is externalised as full comprehension, an understanding the purposes of every practice and the effects on the crops such as expected yields or their improvement. Furthermore, learning requires a constant need for observation to make the case for contrasting both farming systems, organic and conventional, where farmers state the importance of co-existing with the environment, that is, the interaction of the crops with insects and make efforts towards strengthening the soil. Therefore, observation of the crops and their interaction with their environment necessarily requires observation for learning, which is concretely evident when showing a full understanding of the practices, rather than mere compliance to them.

Food safety was another element of that makes a good organic member of SFP/PO. Farmers argued that before joining SFP/PO, food safety was not part of their operation nor practices. One farmer said: *"how could I tell you? All this was something we weren't accustomed to"* [SFPS02PAN]. One farmer highlighted that *"the fields must have some kind of fencing to prevent contamination and access from animals that could threaten the quality of crops"* [SFPS02IVG]. Previously, crops were grown without fencing, and harvested without gloves or hand washing. In contrast, now the farmers in SFP/PO are implementing strategies to prevent animals, people, chemical inputs and machinery from entering their fields.

In summary, Joint Enterprise in SFP/PO is matter of understanding, experiencing and carrying out efforts towards finding strategies for reducing losses in product, creating alternative products, and sharing risks among participating farmers. Joint Enterprise also means understanding and carrying out what is perceived as good organic farming, where farmers acknowledge the obligations of organic and food safety standards. Showing conviction and consciousness of the implications of such standards is considered essential for farmers that are a hundred percent organic. For farmers of their experience the tacit idea of a family of farmers, being part of that family works as a motivation that permeates participating farmers across Baja Peninsula, to provide support and help. Participating farmers understand that SFP/PO is a social purpose operation which they are active members of, and which is guided by elements that constitute being a good organic farmer.

6.2.2 Mutual Engagement

Across southern Baja Peninsula, farmers in SFP/PO interact based on dynamics of team work. According to Wenger (2000, 2010), mutual engagement means to establish norms and relationships among practitioners. It means that such norms and relationships enable and allow productive engagement with others in the community. Lowitt et al. (2015) argue that a Community of Practice can give rise to the necessary interpersonal interactions, by developing norms and values (p.365) Farmers' interactions are based on the norms focused on two activities: i) the requirements for organic and food safety certification and ii) relationships focused on finding technical solutions to improve farmers' production activities. These two activities are binding elements of their interactions, where farmers negotiate understanding with a sense of helping by following a set of unwritten norms.

In following the norms regarding requirements for certifications, understanding the norm requires a degree of discipline due to the record keeping that will be verified as part of the organic certification assessment. As one farmer put it: *“organic agriculture is a more accurate process than conventional agriculture which doesn't require so much care”*. [SFPS02IV]. This quote shows that farmers have defined a way of managing their crops, emphasising processes of using organic inputs, and keeping records of all inputs they use. Farmers follow norms for organic certification to know the type of crops and quantities they ought to grow, making visible the type of inputs, seeds, and actions they have taken to manage the crop or control any pest.

A common view is that farmers explained that record keeping helped achieve a more “organised” way of practising agriculture. As one farmer said: *“I am careful to have my notebooks in the field and note what seeds or inputs I used that are authorised by the agency”* [SFPS02IVG]. Record keeping [organised agriculture] makes visible the processes underpinning crop production. As the quote illustrates, farmers know that record keeping allows them to answer questions for a third-party audit, i.e. every application of fertilisers, recommendations from the area co-ordinator or even incidents such as animals in the field or sick harvesting staff, is recorded. This is consistent with the observations made when farmers showed how they kept records and the type of information stored.

Food safety certification also implies following the norms, which leads to a systematic and organised way of carrying out production activities. Farmers share the view that both certifications, organic and food safety, are linked and have the same aim, to make produce meet safety and organic quality standards. As one farmer put it:

“For example, food safety certification asks you to check your entire operation and identify risks points that could impact your product. You then need to implement strategies of what you would do if you had that problem”. [SFPS05PJC]

Farmers map out every risk point of their operation when picking and growing and take steps to reduce the probability of their produce being compromised with any type of contamination. One common risk farmers identified was the use and position of toilets (including portable toilets).

Farmers’ understanding of norms can be seen when they argued that the risk comes from toilets that have chemicals, and should there be a leak, it could compromise the entire production. One farmer said:” *if you do not identify the risks yourself, you are not following the rule [unwritten norm]*” [SFPS05COOR]. Farmers are collectively responsible of providing assurance that their operations are safe. This co-responsibility allows farmers to interact with actions that will ensure that the operation of SFP/PO as GVC is safe and productive.

For example, farmers state the first thing they do when visit other farmers’ fields is to look at crops, hoping to find insects. If there are no insects it might indicate that something is wrong. A lack of insects in the field suggests farmers either use chemical inputs, or an inadequate execution of organic practices. In either case, a lack of insects provides an incentive to search around the field, hoping not to find prohibited chemicals. As a result, farmers carry out their production activities in a systematic way, providing visibility for themselves, and creating certainty that in their farming operation organic principles are proved to be followed. The visits are constant, which indicate the existence of scheduled visits for every farmer, consequently promoting constructive

feedback on the practices and enhancing the engagement between novice and competent farmers.

Finding technical solutions to improve farmers' production activities are also norms that guide interactions among farmers. For example, one farmer said: *"We try to teach and show farmers new tools"*. Farmers interact with each other to find solutions to better manage diseases in crops, improve soil structure, reduce compaction and manage nutrients. For example, another farmer said: *"I love to work with other farmers [from SFP/PO] to solve problems [SFPS01DRF]*. Within the SFP/PO GVC, farmers have developed different production techniques and improved those they have learned from other farmers.

Farmers establish relationships of mutuality where they interact as a team, based around norms focused on meeting the requirements for organic and food safety certifications, and finding technical solutions to improve farmers' production activities. In following these norms, farmers understand and internalise the norms of organic and food safety certifications as well as finding technical solutions. Norms help farmers carry out a more organised agriculture and show co-responsibility. Norms lead to a systematic operation which ensure a safe operation of the entire value chain.

6.2.3 Shared Repertoire

In SFP/PO novice farmers and competent farmers can benefit from a pool of resources that came about because of farmers' interactions, experiences and projects carried out throughout thirty years of operation. As a GVC. Wenger (2000) argues that CoP produce a Shared Repertoire of communal resources, such as language, concepts, tools and that reflect the views of the Community

of Practice. In addition, Lowitt et al. (2015), argue that CoP help maintain a shared language and body of knowledge among individuals, and contribute to the formation of a community memory that can persist after original members have left. In SFP/PO, the pool of resources consists of knowledge on agricultural techniques, language, and spaces for discussions. Knowledge is the first element from the pool of resources. By participating in SFP/PO farmers have the possibility to interact with experienced farmers in organic practices, as well as technicians who specialise in activities that farmers need most to learn e.g. entomology. In addition to technicians, competent farmers will pass on their experience on how to carry out organic farming to enable the development of production skills.

One common view among farmers is that pest and plant diseases are two of their main problems. They also express a sense of relief that specialised technicians, such as entomologists, are available to share in identifying solutions to combat pests and diseases.

Visits of technicians, who have a specialised knowledge, is a mechanism by which farmers have access to knowledge. The entomologist stated: "*the first thing I did when I joined SFP/PO was to visit all farmers across the Southern Baja Peninsula*" [SFPS01DRF]. The entomologist visited all SFP/PO farmers across southern Baja Peninsula to identify the issues in each production site and, along with farmers, find a technical solution.

Other examples of access to specialist technical knowledge by participating farmers regards crop rotation, composting, and cultivation activities. The area co-ordinator is a specialised agronomist who is also a farmer himself. As an experienced organic practitioner, he passes on knowledge and information

about the benefits of encouraging of microorganisms, how to carry out the activities in land of participating, and helping farmers identify pieces of their land where they can grow organically.

Language is another element from the pool of resources. Farmers shed light on the development of a code of communication which displays the knowledge farmers have accessed. During interviews, it was observed how farmers were able to communicate and express their experiences in organic practices by using technical terms. For example, farmers are conscious of the change in mentality and way of doing agriculture and this change is expressed in their vocabulary. As one of them said: *“in other farms and pack houses there aren't rules nor a good way of doing things for export or local produce, because they are not organic”* [SFPS03CM1]. Their participation in SFP/PO engages them in some dynamic social interactions where a technical and more sophisticated language is used to communicate how agricultural practices should be done.

When I asked farmers about crop cultivation, farmers demonstrated how they have gained a shared understanding of various concepts of cultivation. For example, one farmer said: *“crop ration is about establishing any type of crop in a piece of land where previously that crops have not been grown”* [SFPS]. Regarding pest control, another farmer said: *“when there are insects that affect our crops, speaking of pest, there are organisms that eat phytophagous which are their natural enemies”*. Both quotes shed light on the use of terms in their language. The terms *crop ration, pests, organisms, phytophagous and natural enemies* are terms used in organic standards of the American legislation. Even though, farmers do not use codified information as their main source of reference, verbal communication contains the terms of what the organic standards require. This

shows how language is used as a resource and is linked with the codified knowledge that is available in SFP/PO.

SFP/PO also provides spaces for open discussions among participating farmers, both novice and competent. There are two specific spaces for discussions, i) balance and budget meetings and ii) the general annual meeting. In both spaces, farmers have the chance to negotiate the types of crops, logistics and issues related with certification. Regarding balance and budget, farmers meet with the area co-ordinator and the manager of international farming, to negotiate the types of crops that will be grown for coming season. In this space, negotiation takes place on a one-to-one basis to determine what crops farmers each farmer is most competent to grow. Hard data demonstrates how capable farmers are of growing specific crops. As a result, the meeting allows farmers to select the crops of their choice, and whether they want to increase or decrease the production area of a specific crop. *Balance and budget meetings* are spaces that provide an opportunity for farmers, the area co-ordinator and the director of international farming to negotiate and propose new crops. There is also an opportunity for farmers to express their concerns and identify the strengths and needs regarding their own operations.

The *Annual General Meeting* is another space where all participating farmers, as well as the broker and the commercialisation team in the USA, come to Southern Baja Peninsula Mexico, where farmers, the area co-ordinator, and the commercialisation team expose the situation of SFP/PO is in respect to other brands, and what are the new requirements and concerns from customers that will shape production activities for farmers. It is also the space where farmers, as members of the community, express their opinions with respect to aspects

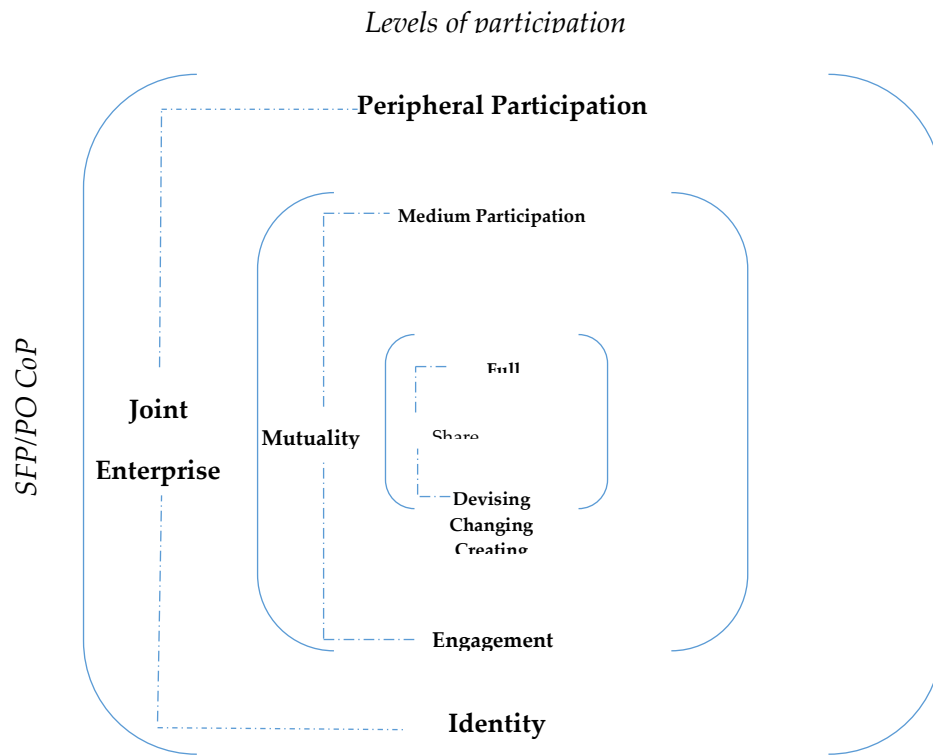
of production and product development, and indicate the support they feel they need.

In summary, farmers collectively define competence by understanding the philosophy of SFP/PO, where their efforts are focused towards the improvement of farmers' living conditions by growing and commercialising organic produce. By experiencing the philosophy, farmers become reliable members of the community where they establish relationships based on norms. SFP/PO sheds light on ethical dimension such as its philosophy which becomes an important aspect of the understanding of the purpose of SFP/PO. In addition, farmers in SFP/PO create a pool of resources like knowledge and language which are available and used to look for solutions to problems. As part of the pool of resources, farmers create the spaces in which there are opportunities for negotiation and exchange ideas throughout the GVC.

6.3 Competence display: Modes of Participation to SFP/PO Community of Practice

In San Francisco Produce/Peninsula Organics, farmers' competences are displayed in accordance to the level of participation in the community in three sequential levels. Wenger (2000) argues that the belonging of apprentices or pioneers, new-comers or old-timers can take various forms of participation, distinguishing between Imagination, Engagement and Alignment. In Figure 6. Competence Display in SFP/PO, I illustrate that peripheral participation is the basic level of competence display, where farmers display competence by developing an identity based on the sharing understanding of what the SFP/PO community is about. Medium participation is the intermedium level of competence display, where farmers engage on mutual and reliable

relationships. And finally, in full participation in SFP/PO is the highest level of competence display, where farmers devise, change and create tools for improving relationships. **Figure 6. Competence Display in SFP/PO** discuss how each level displays competence.



Source: Data collected during fieldwork

6.3.1 Peripheral Participation

Farmers' participation in the periphery of the community starts by building the identity of an organic farmer through understanding the undertaking of San Francisco Produce/Peninsula Organics (Joint Enterprise), specifically, *i) its philosophy* and *ii) the principle of organic farming*. Given that farmers' previous context was that of conventional farmers, farmers' peripheral participation

into SFP/PO Communities of Practice requires embracing an effort of redefining their identity, to become organic farmers.

Before joining San Francisco Produce/Peninsula Organics, their identity was that of a conventional farmer, producing for themselves and local markets. There was no need to meet stringent international market specifications. In describing the conventional context, a farmer put it this way: *“we were farmers and my thing was to grow corn”* [SFPS04PR]. The quote illustrated the farmer’s context in which conventional agriculture and local market dynamics predominated in his practice, specifically the production of corn for local markets. The quote also sheds light on the contextual elements such as conventional agriculture, and local markets had defined farmers’ identity by using a collective noun of *we*, implicitly showing interactions among other farmers in that context. However, farmers’ accounts indicate that by joining San Francisco Produce/Peninsula Organics, they changed their perception to that of a new context in which meeting requirements of international markets, specifically, the US market, meant changing the way they had been doing agriculture and therefore, their identity as farmers.

Joining SFP/PO meant interacting in a context of agriculture that redefined farmers’ identity from that of conventional to organic and producing for a Global Value Chain. For example, in the peripheral ring of the community, farmers begin redefining their identity by undertaking both organic and food safety certifications as part of the Joint Enterprise of San Francisco Produce/Peninsula Organics. One farmer put it this way: *“here [SFP/PO] all the activities are in line with the organic regulation, the national organic programme of The USA”* [SFPS03CM01]. The participation in SFP/PO entails bearing in mind the standards for certification and sense of responsibility to maintain these

standards. An interviewee put it this way, with respect to organic standards: *“growing organics is challenging because you’re not allowed to use many things [chemical based inputs] techniques of modern agriculture. But obviously you decide to go back to fundamental basis of agriculture”* [SFPS04PR]. Both quotes shed light on the effort carry out to embrace the joint enterprise of SFP/PO to become an organic farmer.

The same farmer later stated that: *“We are growing healthy produce”*, shedding light on how SFP/PO context provoked change in his interaction with crops and inputs: *“now our experience tells us that we should use compost to grow basil and we see the results”*. The farmer consciously highlights the use of organic inputs pointing out the additional attributes they provide to the crop, such as an emphasis on health, rather than merely production, which contrasts his previous interactions with chemical-based inputs.

When farmers were asked about food safety certification, one said: *“food safety is very important. If a farmer grows something without considering food safety standards, simply that farmer is not reliable, and SFP/PO will not take the risk”* [SFPS03CM03]. This narrative surfaces with the view of the area co-ordinator who sees certification as an act of faith. One farmer provided an example of how they experienced following food safety certification standards: *“before, we could pack our produce underneath the trees, but not anymore”* [SFPS02PAU]. In contrast with what their practices were in conventional agriculture, this quote indicates the changing of their practices towards the undertakings of SFP/PO. This means farmers have changed their agricultural practices by incorporating the requirements of SFP/PO and those of wholesale customers. For example, the practice of packing under trees is no longer accepted due to lack of control

of hygienic requirements. SFP/PO and its customers need to guarantee food safety for which farmers must pack their produce in certified pack houses.

Even though the context of conventional agriculture defined, at the beginning, the identity of both farmers, there were cases in which the farmers' effort for developing an identity was insufficient to participate in the periphery of the value chain. In 1999, a cooperative dedicated to growing and producing conventional lemons and pineapples contacted SFP/PO due to their interests in organic farming. The cooperative accomplished the organic certification so that the smallholder farmers' efforts appeared to have engaged with the undertaking of SFP/PO. However, their identity was not transformed, as the area co-ordinator explained:

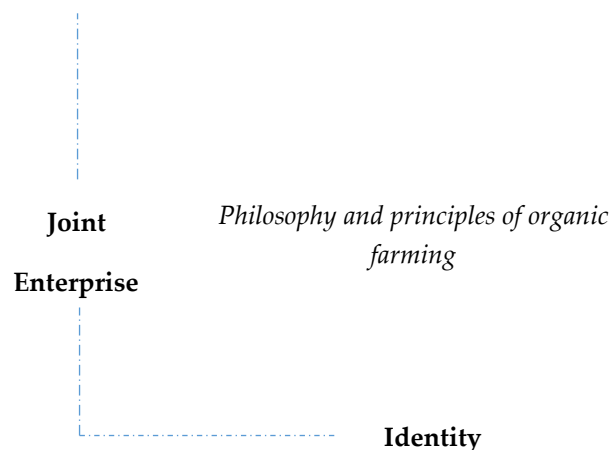
"I went to visit them to make a quick inspection. I noticed there was a presence of small fly that affects citrus. I talked to one of the farmers and I found out that the input they applied caused them pain and irritation. That was not a good signal. I walked at the surroundings of the land and I discovered containers of prohibited chemical. The group was dismissed"
[SFPS01COOR1]

Despite the apparent interest, the identity as a conventional farmer was stronger, clashing with the undertakings of the CoP of SFP/PO. As their operation had been mainly conventional, their context implied that of a mixed operation, which required a combination of conventional and organic standards. Since their participation was peripheral, and despite applying to be part of the purposes of SFP/PO, they were not fully embedded into organic farming practices, and the identity of this group of farmers did not change.

Another single farmer was invited to participate. The efforts for redefining his identity for peripheral participation were not enough to engage with the

community of practitioner farmers. The area co-ordinator put it this way: “*The issue with Mr. T was that he wasn’t completely convinced that his crop would work, as he was used to growing grains in large extensions*”. The single farmer’s effort did not allow further development of an identity of organic farmer to enhance the display of competence in the periphery. The conventional agriculture scheme and thus identity, were entrenched that despite engagements from the area co-ordinator could not incept motivation nor deeper engagement with the community.

Figure 7. Peripheral Participation



Source: Data collected during fieldwork

As illustrated in Figure 7, in peripheral participation, farmers display competence by showing understanding of what the enterprise of SFP/PO. By following the organic farming principles and the philosophy of SFP/PO, farmers develop an identity which allows them to start participating with competent farmers, to gradually pave their way into other levels of participation and activities. For example, farmers in Firm 4, elucidate a successful conversion to organic farming. Firm 4 had no experience in

agriculture at all, however, they were willing to change their economic activity, and this enabled them to embrace the organic principles and philosophy of SFP/PO. In addition, their conversion took around 2 years, given the time needed for them to develop the basic organic farming skills. In contrast, farmers in Firm 3, although part of the chain, are still in the process of developing their identity, given that those farmers were used to growing large areas of conventional grains. Despite these barriers, the younger generation (the sons and daughters of these farmers) are driving the change meaning there are better prospects for this cooperative to embrace deeper participation.

6.3.2 Medium Participation

In medium participation, farmers display competences by engaging with one another in carrying out practices with the purpose of finding solutions for common problems i.e. i) cultivation practices and ii) starting organic operation. In SFP/PO an identity of an organic farmer, creates the possibility for farmers to further engage with other farmers and develop their competences in a medium level of participation. This means farmers are reliable practitioners and therefore can engage in relationships of mutuality to find solutions because there is certainty that norms are followed and understood so that the solutions contribute to the operation of San Francisco Produce/Peninsula Organics.

During the interviews, farmers in general stated a common concern regarding biological control, highlighting the issues on changes of climate during the transitions from spring to summer. This change in seasons creates a variation in temperatures, from temperate to warm, that accelerates the growth of

populations of insects. This is a critical issue for farmers given that this time is also the period for planning planting for the next season and begin preparation for growing crops, which ultimately compromises crops quality. As the entomologist described: *“when I first started in SFP/PO, I found farmers very concern about pest control. They told me they had problems, and I told them I needed data, records and pictures. In this regard, one of the first skills of farmers was to know the types of insects in their fields across southern Baja Peninsula. As one farmer put it: “we would put traps and changed them every week and every other week in those faraway places [farmers how lived in very isolated places]”* [SFPS01DRF].

The activity of collecting insects with traps and sharing information with the entomologist was based on identifying types of insects that affect crops and what their natural enemies. This engagement involves farmers from all regions, as one farmer said: *“what we [farmers across Baja Peninsula] did was to monitor crops, watching and checking the presence of insects. If we saw the incidence of any kind of insects, then we introduced beneficial insects that counteract that plague”* [SFPS03CM02] As there is a common threat that could hinder the quality of their production, in this quote the farmer indicates the strategy they carried out. Particularly the statement shows that the strategy was collectively developed. For example, the entomologist was in the middle of southern Baja Peninsula so that he could be closer to farmers and move fast to every location as easy as possible. In this way, understanding farmers’ issues with insects and context would much easier.

Within the logic of the strategy was that farmers and technicians do periodic inspections to every geographic zone, twice a week and assigning specific task to farmers. The visits, task and the availability of the entomologist to receive

calls from farmers, enabled the communication between farmers and entomologist. The engagement is driven by the concern on finding out the behaviour of populations of insects. The common need allowed farmers to interact with participating farmers and the entomologists based on the exchange of information.

With regards to activities for *starting operations*, farmers need to interact with experienced farmers to carry out cultivation practices according to organic standards. The area co-ordinator expressed: *“my first task as part of SFP/PO was to stay in the farms of two new farmers that were learning to take them forward in cultural labours and certifications [for about 6 months intensively]”* [SFPS01COOR01]. The main theme that came out was the historical records of land for both organic certification and management of land [cultural labours and crops]. These activities require farmers and area co-ordinators to doing things together. One of the farmers said: *“Yes, of course, he [area co-ordinator] was coming every day [...] precisely to check out how the crops were going, how the [crops] were developing* [SFPS03CEO]. In both quotes, the identity of an organic farmer drives the interaction with the purpose of creating a team. This identity allows them to connect by using the same language and knowledge to assure the compliance of organic standards. Both farmers are bundled by interacting in the medium level of participation.

Despite engaging farmers in mutual activities, there were accounts that suggested some farmers struggled to do things together, which were not validated, or did not meet the features of a team work in SFP/PO. For example, the third cooperative that was part of SFP/PO started to manifest issues with carrying out production activities. As one farmer of that cooperative explained:

“We [farmers] started doing things our way which was not necessarily right. It was evident because we started receiving many complaints from our broker in the USA. [...]”
[SFPS05CM02]

This quote illustrates that despite the engagement with competent farmers, during the interactions there were disagreements among novice farmers as to how important their role was in soil and compost preparation, quality control, and creating the perception that they did not care about these activities, and therefore they were not contributing to SFP/PO. Some farmers benefited financially more than others. The issues they faced were poor quality and yields on cherry tomatoes, not complying with activities of the season, creating production problems in whole operation of SFP/PO.

For example, soil was among the issues as consequence of the disagreements. Farmers experienced disagreements, creating lack of engagement and therefore, made farmers follow the soil building and compost practices irregularly. One critical issue was that of farmers working when they had wounds, affecting the quality of the produce. The lack of engagement was evident in the failure of the harvesting crew to follow hygiene rules and not work with wounds. As an example, one farmer managed to work on the field with a wounded hand. At the time of packaging, other farmers found blood stains on the band that protected the wound. This issue could have escalated with major consequences, hindering the ability of the entire network of participating farmers to export their produce into the US market, had the band and blood stains been found by final consumers.

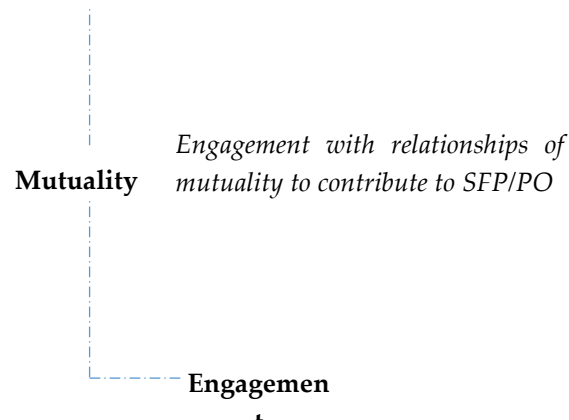
However, as part of the engagement effort, the area co-ordinator reinforced the importance of mutual relationships among farmers by highlighting the purpose of SFP/PO. As he put it to them:

*“I told them straight forward that if they didn’t to work together, if they haven’t understood each other nor what this [SFP/PO] is all about, I’d rather have split the group into two or three as a second chance or terminate the operation”
[SFPS01COOR01]*

The quote of the area co-ordinator calls on the purpose of integrating farmers into added value production activities. The fact that these farmers weakened their engagement with the rest of community and posed a threat to the operation of all farmers, meant to apply a strategy of dividing the group into two groups. This strategy could finally group farmers with affinities in their objectives and personalities to reinstate their relationships of mutuality among farmers and ensure the operation of SFP/PO as value chain. The strategy also ensured that farmers could stay as part of the value chain, not in one group, but in three different groups and ensured the well running of the farming operation of the whole value chain.

As illustrated in Figure 8, in medium participation, farmers display competence by engaging with other farmers in relationships of mutuality based on norms with the purpose of finding solutions to common problems.

Figure 8. Medium Participation



Source: Data collected during fieldwork

6.3.3 Full Participation

In SFP/PO displaying competences goes beyond the realm of producing according to specifications, be they quality, organic, food safety or Fairtrade certification. Following requirements show a peripheral and medium participation meaning farmers have developed the necessary skills to contribute to the process of organic production and thus engage in the production effort with other farmers. Therefore, farmers display full competence when their activities and production skills are used to start devising, changing and creating tools in accordance with organic standards for the benefit of their own practices and the practices of the rest of the community of farmers.

In this regard, competent farmers highlighted the importance of following up the organic principles. Their experiences are added to the pool of resources of SFP/PO and made available to other farmers. One competent farmer put this way:

“it is important to show farmers how to coexist with insects and use the organic inputs because they are plant base inputs. Then they [organic inputs] do not have the same effect as chemical base inputs” [SFPS04IT02].

The farmer shows conscious and awareness of guaranteeing the organic quality of their production and the entire operation of SFP/PO. This is consistent with the statement of the same farmer when he argued that: *should one of the produce be identified as contaminated, at the end of the day, it affects the whole of us [SFP/PO]” [SFPS04IT02].* Therefore, competent farmers constantly argued that there exists a big risk that one farmer does not comply with the standards for the whole of the community of farmers. Their arguments are part of the stories that illustrate to other farmers, especially novices, the risks that like in the operation of SFP/PO and the shared responsibility there exists among participating farmers.

To help other novice farmers in the periphery and medium participation, competent farmers share their experiences to create consciousness in novice farmers. The area co-ordinator tells farmers:

“I tell farmers to imagine and place themselves in a super market where there are twenty different brands of cherry tomatoes. And that customer looks at SFP/PO brand perhaps because they like the product, because they know we work smallholder farmers. You should feel very proud you have been chosen among many brands” [SFPS01COOR1]

As a competent farmer, the area co-ordinator shares this made up story to farmers as source of information to call on their identity of organic farmer and enhance their mutuality, their sense of collective work to ultimately create consciousness of their actions and how final consumers perceived their own brand thus how important the organic farming practices are so that their

produce are competitive i.e. still within the preferences of customers in the US market. Competent farmers pay visits to novice farmers, to suggest techniques as to how to improve biological control, based on their experience. One farmer explained:

Q1. "I suggest to farmers that biological control is creating the adequate conditions for natural enemies to stay in the sites [fields] all the time, and that is the grow of crops as natural barriers"

Q2. "Natural barriers help protect the crops from strong winds and dust. Then natural barriers such as sunflower, coriander and corn. Any plant with flower will attract natural enemies".

Q3. "Then you are giving places for them to reproduce and where they will keep their populations. They [insects] will grow and move wherever the crop is located. [SFPS01DRF]"

In these interactions, competent farmers make their knowledge available by making suggestions to improve the farming practices. In Q1, the farmer reinforces the principles of biological control by stating the importance of creating conditions for natural enemies. In Q2, however, the farmer further developed the suggestion by naming the type of crops which create suitable conditions for natural enemy insects. And in Q3, the farmer passes on to the novice farmer their reflections upon the practicalities of their own practices, by highlighting the how it has worked for them.

In addition, competent farmers create techniques for the further improvement of their practices. Those techniques are shared among participating farmers so that they become part of the pool of knowledge and techniques. One farmer developed a technique to combat insects and support biological control:

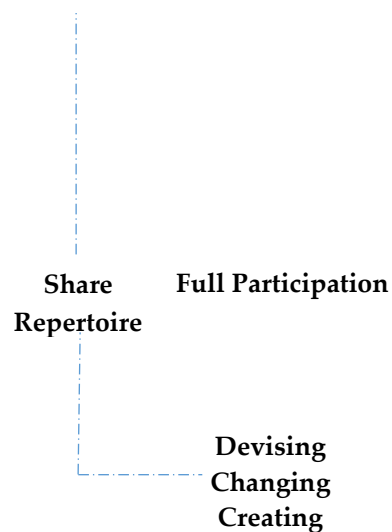
“I noticed that whenever I went into the greenhouse and turned on the vacuum to capture some insects, insects would let themselves fall off the plant to seem dead. [...] what I did was to place sticky yellow traps on the floor and I would turn on the vacuum. I saved money, collected insects I needed” [SFPS06IR001]

Another farmer also developed another practice for transplantation:

“We were told to transplant three plants per meter. We tried something different; instead, we transplanted six plants per meter in zig-zag in double line. With that we realised we saved seeds, wood sticks. In 1/8 of the same space we planted more plants, and therefore we also saved water” [SFPS06IR001].

In summary, these accounts from competent farmers reveal the adding up of techniques that form part of the pool of knowledge and are passed on to other farmers in teachings. Their mastering of their practices went further, they decided to try different approaches to improve their practices.

Figure 9. Full Participation



Source: Data collected during fieldwork

6.4 Summary

This chapter addressed the research question of *How do smallholder farmers display competence in the Community of farmers of San Francisco Produce/Peninsula Organics?* The analytical categories of Communities of Practice illustrate the social learning that takes place among farmer. These categories were used to analyse first, how participating farmers define competence and then to examine how farmers display the collective defined competences in the community of SFP/PO.

San Francisco Produce/Peninsula organic illustrates a social learning characterised by social participation where competence is defined by members of the community. The analysis of competence definition and display illustrates that San Francisco Produce/Peninsula Organics as Global Value Chain (GVC) constitutes a social context where partaking farmers involve themselves in social participation. Farmers collectively define what constitutes a competent organic farmer in this value chain. *In the periphery of the community*, farmers display competence by developing an *identity of an organic farmer*. The undertaking of SFP/PO shapes the identity of farmers by changing the way they interact with crops, having in mind the standards for organic and food safety certifications and the social purpose toward improving their living conditions.

Social participation regards identity formation and redefinition for it to engage with other farmers in mutual understanding. As farmers with their new identity interact with other farmers, in *medium participation*, farmers are now able to engage with the community in carrying out practices with the purpose of finding solutions for common problems regarding cultural labours and for

the start of farmers' operation. Farmers can engage in relationships of mutuality, making them reliable practitioners to find solutions with the certainty that norms are observed and internalised so that solutions can contribute to the operation of SFP/PO.

Finally, with farmers' engagement with the purpose of finding solutions, in *full participation*, farmers contribute to the pool of resources for the benefit of practices of the rest of the community of farmers. In this level of participation, competences are displayed with activities and experiences of farmers who can use the language the community understands, convey experiences throughout the network that illustrate foreseeable situation another farmer may have to undertake. Therefore, learning in San Francisco Produce/Peninsula Organic acquires the social characteristics due to display of competence in three levels of participation, which gradually allows farmers to become competent members of the community. In the next chapter I will discuss how SFP/PO enables farmers to develop their production skills; that is how farmers co-create knowledge and learn organic farming practices.

Chapter 7: Analysing learning in production capabilities in SFP/PO

7.1 Introduction

In this chapter, I examine how smallholder farmers in San Francisco Produce/Peninsula Organics (SFP/PO) learn the skills for production capabilities, concretely, the skills for producing organic crops. González (2012), argues that in the Mexican context, the reasons for the low growth in agricultural production activities in smallholder farmers is the low level of technical skills for production, in addition to limited access to markets.

I argue that in SFP/PO, actors learn production capabilities through social learning, characterised by social interactions with the support of the experiences of farmers in organic agriculture, and the experiential knowledge of smallholder farmers. The analysis points towards CoP having the potential to serve as loci for social learning and innovation (Wenger-Trayner, Fenton-O’Creevy, Hutchinson, Kubiak, & Wenger-Trayner, 2015). Social learning is a constructive exchange of experiences within a social structure, for which that experience is meaningful. The social structure is the context of people, their relationships and the interactions that occur between them. Through this social structure, knowledge is constructed rather than transferred (Wenger 2010). Social learning ultimately enables the development of production skills.

In this chapter, I address the research question *how do smallholder farmers in SFP/PO learn skills for production capabilities to become part of the Global Value Chain?* It aims to understand the development of production capabilities of

participating farmers in Global Value Chains. To analyse the learning of Production Capabilities (TC) in smallholder farmers, I use the *Knowing in Action* framework by Amin & Roberts (2008). I examine and explain the social elements of learning in smallholder farmers participating in Global Value Chains. In line with the argument of Blackmore (2007), the analysis of learning within SFP/PO is about understanding how smallholder farmers learn collectively, in groups. The analytical elements of *Knowing in Action* are relevant to this analysis because they capture learning *in situ* skills for production capabilities in smallholder farmers. Particularly, the analytical elements of the typology consider organisational dynamics, types of knowledge, and nature of social interaction (Amin & Roberts 2008). Hence, the typology focuses on the context, process, social interaction, material practices, ambiguity and disagreement, idiosyncratic, and natural elements of learning, which are often overlooked in Communities of Practice (Amin & Roberts 2008).

Firstly, I will explore the organisational dynamics of SFP/PO to examine the transfer of external inputs, and its coordination, as well as the coordination of a group of smallholder farmers that enables learning. Secondly, I will analyse the type of knowledge smallholder farmers use and produce when learning organic agriculture practices. I pay attention to how experiential knowledge is developed, and how this knowledge works as a base from which new knowledge is built by farmers. Thirdly, I look at the social interactions that affect the way in which farmers learn. I examine the nature of the communications, the type of interactions which happen between smallholder farmers, the temporal aspects of those interactions, meaning the length of time in which those interactions took place, and the nature of social ties that

emerged as result of the interactions. And, finally, I present a summary of the chapter and address the research question.

7.2 Organisational dynamics

The relationship between learning and governance structures in Global Value Chains has been widely studied, especially related to upgrading opportunities, e.g. product, process and organisation (Humphrey and Schmitz, 2002a; Kaplinsky et al., 2003 in Moyer-lee & Prowse (2015)). In value chains studies, empirical evidence shows that governance structures play a role in determining to which extent suppliers upgrade their production capabilities. However, value chains analysis has been criticised for focusing too much on governance structures and, therefore, on the structural elements of production (Lowitt et al. 2015). In this analysis, governance means the rules and decisions related to which, and how agricultural produce should be produced. These rules and decisions determine the directionality of the authority and the power relationships to control and coordinate exchanges in capital, technology, and standards, between Global Buyers and suppliers.

I argue that, while governance is important to explain production, learning in this value chain takes place in the form of social participation, with organisational dynamics which capture complex social interactions and relations (Ibid). Therefore, I am taking organisational dynamics to examine communications between the Global Buyer and competent farmers and space for negotiation between them with regards to rules and decisions related to production.

The data collected for this research indicates that in SFP/PO, learning occurs in juxtaposition with two organisational dynamics. One that is driven by the Global Value Chain (GVC) where farmers are immersed, and the second dynamic takes place within the Community of Practice (CoP) of farmers, Coordinators and technicians.

As a Global Value Chain, SFP/PO has a governance structure which coordinates the activities between participating firms (e.g. co-operatives of farmers as well as individual farmers), the Global Buyer (GB) and Area coordinators. The GB exerts power by engaging with farmers, establishing a set of responsibilities for both GB and participating farmers. The Area coordinator of southern Baja peninsula reflected on this issue saying:

“The broker is responsible for providing all technical advice, organic inputs and seeds, as well as financial resources for farmers to start their farming operation. He [GB] is committed to selling the organic produce of farmers at the best price possible. The commitment of farmers is to fulfil the season’s programme as given to them and grow to produce under the organic farming system [standards].” [SFPS02COOR01]

Contracts are the mechanism used to formalise coordination of production, and define responsibilities of participating farmers, whether co-operatives or single farmers. The Global Buyer is obliged to provide inputs for production such as seeds, fertilisers and financial resources, along with packaging material. The Global Buyer also provides technical advice through the Area co-ordinators. The Area co-ordinators communicate to farmers the requirements of US organic standards and provide manuals which contain basic agronomic information on how to produce specific produce. In this way, all smallholder farmers can have access to inputs for production and the basic information necessary to comply with the requirements of the Global Buyer.

Smallholder farmers are obliged to produce exclusively for the Global Buyer, excluding the possibility of growing for other buyers. In addition, they are responsible for their own farming operation and the proper use of organic inputs to supply satisfactory quality organic produce. Although not stated in the contract, on an informal basis, farmers can sell produce in Mexico, as long as smallholder farmers label the produce as conventionally produced, not organic. The governance structure illustrates how coordination for production is exerted for production activities by the Global Buyer and Area co-ordinators towards participating farmers.

As for coordinating production, SFP/PO as Global Value Chain, has a *modular* type of governance according to Gereffi's (2005) classification of governance. I present the four elements of its governance in Table 8. In this type of governance, there are three key aspects directly related to the transfer of information to the producers, which allowed them to develop the capabilities to produce the products according to the Global Buyer requirements: i) complexity of transaction, the requirements of how products must be produced in accordance with the Global Buyer requirements and farmers must comply with, ii) codifiability of information, that is the extent to which information is codified and transmitted efficiently for producing the product or carry out a service and iii) capability of suppliers, which is the ability of actual or potential suppliers to comply with requirements of the transaction (Gereffi et al. 2005).

Table 8. Governance Structure in SFP/PO

Type of Governance	Level of Complexity of transaction	Level of Ability to codify information	Level of Capability in suppliers	Degree of explicit coordination and power asymmetry
Modular	Complexity of transaction is high due to fulfilment of organic specifications for cultural labours and certification	High: Information on organic certification, food safety and cultural labours is codified in manuals and standards	Low production capabilities. Developed in communities of practice based on social learning based on social interactions	Power is exerted by Global buyer through contracts that coordinate the supply of inputs, financial resources, commercialisation channels opportunities.

Source: Adapted from Gereffi (2005)

In the SFP/PO case, modular governance arose as the *complexities of transactions* were met by farmers. In this GVC, the complexity of transactions consists of growing modules of speciality herbs (e.g. basil, chives, mint, sage, and tarragon) and cherry tomatoes. The modules specify the size, quality and specific handling aspects of every crop. In addition, specific packaging rules for every crop that are to be followed. Therefore, the modules are the complexities which are set by the Global Buyer. There is *codified information* contained in documents, for example, standards and manuals which have directions and instructions on how to carry out production activities, cultivation, pest control management, and fertilisation to produce the modules of organic produce. This Modular governance structure helps coordinate the information transfers involved in fulfilling the requirements of producing organic crops of a sufficient

Within the modular governance structure and further elaborating on the responsibilities of farmers, there was a sense of commitment among smallholder farmers regarding their relationship with the Global Buyer. One farmer said that “*you will not be able to find another broker like SFP/PO, that supports you year by year, with the information and resources you need*” [SFPS02IVG]. Farmers saw their relationship as an advantage, given the availability of information, inputs and financial resources in SFP/PO, compared to the lack of support perceived by farmers in the context of the agricultural sectors in Mexico, and Baja Peninsula in particular. Another view was the possibility of accessing the American market. Having a broker [Global Buyer] which commercialises their produce was most appreciated by farmers, especially if it was a foreign market.

However, the developmental learning of production capabilities specifically links farmers and Area co-ordinators as Communities of Practice. As discussed in chapter 6, farmers needed to generate competence as they are required to comply with the complexities of producing organic crops for the American market set by the Global Buyer. While the governance structure allowed the availability and transfer of *codified information* such as organic standards and manual, social learning appeared to be the way smallholder farmers develop knowledge to comply with the requirements of the production activities. Social learning enabled farmers to develop tacit knowledge of organic farming technology and broaden their agricultural experience. Through social learning, interactions between competent farmers and novice farmers allow the sharing of practices with meaning and context. Consequently, social learning creates meaningful interactions among farmers, as well as opportunities and the basis for social learning, because of such interactions take place in the field, the context of farmers. In this way, organic

agronomic practices are linked with farmers' experience and meaningful Social learning enables farmer' skills to be modified to fulfil the organic standards of the SFP/PO.

Social learning seems to be fundamental in SFP/PO for farmers' production capabilities development. SFP/PO integrates farmers into production activities due to its social purpose. Novice farmers developed skills of production capabilities through their participation in the community of SFP/PO farmers. Learning by novice farmers occurs with their co-location with competent farmers. Competent farmers are identified by the Area co-ordinator³⁰, which is the person responsible for the supervision of all farming operations in a specific geographic location. The Area co-ordinators are identified by the effectiveness and reliability of their farming techniques and teachings. Effectiveness and reliability in performing organic farming practices are the criteria every farmer must comply with to be identified as competent.

The co-locations with competent farmers facilitated novice farmers to transit from conventional to organic farming. The co-locations vary in time and intensity, depending on the ability of farmers to internalise the organic farming practices. For example, in the case of one of the single farmers, co-location lasted around 6 months, whereas for another single farmer, co-location lasted approximately 10 months. Co-operatives particularly are different cases due to the number of partners. With the first and largest co-operative, co-location lasted three years, given there were only three competent farmers who could work with novice farmers, who were dispersed all over the southern tip of Southern Baja Peninsula. The co-location with

³⁰ At the same time, the area-coordinator was identified by the GB. The GB trained him. He demonstrated effectiveness and reliability in his practices.

another co-operative has been repetitive for the past ten years, given the mixed results in their production quality.

Within the community in SFP/PO there is no strict hierarchy among the structure in farmers, making it flexible to participate. As discussed in chapter 6, farmers developed skills for carrying out organic farming practices, moving from peripheral participation to medium and full participation, depending on the level of competence they displayed. Competent farmers such as the area co-ordinator, assess the level of competence. One objective way to assess this is through the attainment of organic certifications. As farmers learn and follow organic farming practices, they master these practices and are even able to improve their own production activities. These improvements are acknowledged and spread throughout the community by competent farmers. The Area co-ordinator of southern Baja Peninsula said: *“I am a conveyor of knowledge. Whenever I see something farmers do is useful to others, I ask them how they did it and tell other farmers how to do it as well”*. [SFP02COOR01]

In addition, the Area co-ordinator of southern Baja Peninsula said: *“We all work like a machine. A machine has gears, and every farmer is a gear. If we all are well tuned, then everything will go normally”* [SFPS01COOR01]. This view and analogy of farmers as a machine is consistent with the common view shared by them, in which many of the improvements they have implemented have been devised by other farmers. Their own ideas were considered and carried out by farmers in the community.

These views surfaced mainly in respect to improving the growth of cherry tomatoes (including germination), pest control, and crop management. For example, one farmer described how he experimented new agronomic techniques based on the experience of another farmer in the Global Value Chain:

“For example, when the Area co-ordinator taught us that we should put three plants per meter, which you have to prune the first tomatoes for the plant (of tomatoes) grow. That was the idea we (farmers) had. Then, one day, a farmer said that he let plants grow without pruning them. I followed up on that. That previous technique we had, we changed it, and we had incredible results” [SFPS06IR02].

Another farmer said:

“We were told to transplant three plants per meter. We tried something different; instead, we transplanted six plants per meter in zig-zag in a double line. With that, we realised we saved seeds and wood sticks. In 1/8 of the same space we planted more plants, and therefore we also saved water” [SFPS06IR01].

These accounts from participating farmers revealed the teaching of organic practices mainly by the Area co-ordinator. In fact, these practices are the result of teachings of the area co-ordinator that inspired or worked as basis to further develop such practices that other farmers learned later. For example, as their mastering of their practices went further, they decided to try different approaches to improve them. These improvements were acknowledged by competent farmers, meaning they saw their effectiveness and reliability. With regards to acknowledgement, a competent farmer, when asked about acknowledging the improvements of farmers said: *“the majority of these improvements come from farmers themselves. We just need to give them the technical*

aspects” [SFPS06IR01]. These improvements draw on farmers’ experience. The juxtaposition of organisational dynamics shows that as Global Value Chain, SFP/PO has a modular mode of governance which coordinates the relationship between participating farmers and the GB to transfer the information to recreate the production activities. However, it also shows how this production activity drives the dynamics of an active part of learning which takes place within the CoP among farmers. SFP/PO seems to have an interest in developing farmers’ production capabilities in that there is a social learning that takes place among participating farmers, where, competent and novice farmers engage in co-location to gain the implicitness of organic farming techniques.

7.3 Experiential knowledge in learning organic farming practices

Farmers know their agricultural activities based on tacit or experiential³¹ knowledge. Experiential knowledge requires looking much more closely at the relationship between farmers and their environments (Krzywoszynska 2016). To become a competent farmer means that farmers must become attuned to the specific ways in which the environment unfolds, understand and interact the environment, and the context they are in (Ibid). SFP/PO claims to teach organic farming practices to their participating smallholder farmers. These farming practices are Soil building, Fertilisation and Biological Control, and are the core activities for growing organic crops.

³¹ It is not the purpose of the analyses to unpick all discussions on the classification of knowledges. I acknowledge there is extensive research on this topic. However, for the purpose of this analysis, experiential knowledge is considered as a type of tacit knowledge.

In the analysis of interviews with participating farmers and the Area coordinator, two themes emerged related to knowledge when learning farming practices: i) the requirements of organic agriculture is information codified in standards and manuals and ii) farmers value their experience as knowledge. Although organic standards are important, because they contain information on the requirements for organic certification, their codified nature placed them in a secondary role for farmers.

A common narrative from most participating farmers was that their previous experiences were all related to conventional agriculture before joining SFP/PO. They only grew crops for home consumption, and occasionally for sale in local markets. When asked about how they learned about conventional agriculture, farmers described how they had been engaged in agriculture ever since they were small children, helping their parents on the farm before and after going to school. One said *"I grow crops since I was a little kid, I started with cotton and then grains. I helped my dad on the farm"* [SFS03CEO].

In most cases, this knowledge was built over a period of years, in direct relationship with a specific piece of land, crops and environment. This way of knowing was valued by them and was their main source of reference and learning when carrying out farming activities. This knowledge is embedded in and embodied by a specific location, social, and historical context. Farmers in the locality of San José Del Cabo described how they worked their small pieces of land, and helped their parents and grandparents to grow mangos, corn, and watermelons. Typically, families in this area have a small piece of land, like a type of backyard or garden, in which they grow crops for their own consumption.

Tacit knowledge of agricultural activities was even clearer in their explanation of their activities, which allowed them to learn organic practices more naturally. During the interviews, farmers even demonstrated a certain level of frustration, because they could not express their experience in words. Given the nature of my question about how they learned agriculture, it was evident for them that I was not a farmer, nor had any knowledge about agriculture. This question took them out of their context. They highlighted their view of agriculture as a common activity, arguing that there was no need for studying technicalities, but rather action and interaction with fields and crops. Therefore, to reply with an answer that could connect with my context and experience, they contrasted formal education with their own experience, illustrating that doing agricultural activities was a very easy thing, something that does not require a university degree or to read books. One farmer said:

“Agriculture is something like say [farmer cursed], you make a grove, then you transplant chives, which is like small onion, and that is all. Then when it grows up to 40 cm, I know it’s time to prune them. Then, I would make bunches of chives and then ship them to the USA” [SFPS02PAN].

In this explanation, evidently experiential knowledge has a tacit component necessary for growing crops and the interpersonal dimension that influences how farmers know. The farmer expressed in his cursing, a sense of frustration in finding the words to pass on to me his experience with agriculture. As perceived by the farmer, because of my lack of experience in agriculture, he had to try to verbally transmit his experience, and connect with my own experience so that I could make sense of the explanation. The farmer felt I needed to know the relationship between him, his environment, and the practices. To do that, he explained how to make a grove using his hands to illustrate it; then he pointed towards one grove on the field for me to have an

idea of what a grove looked like in the field. This way it would be easier for me to make sense of the message. He also used an analogy to explain what type of crop chives was, given that it is not consumed in Mexico. To help me understand, he compared it to an onion, which is close to what I know. He went on to explain how tall it should be before removing the side shoots. To help me understand this, he used both hands to exemplify 40 cm height and how he would make bunches of them to be shipped to the USA.

Table 9. Type of Knowledge in SFP/PO

<i>Type of Knowledge</i>	<i>Use</i>
Experiential Knowledge	<ul style="list-style-type: none"> · For carrying out conventional agriculture · As references to draw on to guide their decisions on how to do things
Codified Information	Use for knowing what to do on specific procedures such as certifications

Source: Data collected in fieldwork

The use of codified information played a secondary role, only for reference, as presented in Table 9. It was apparent that farmers were aware of the importance of manuals and that information on organic farming contained standards. Farmers knew that organic standards provided information on fertilisation, preparation, and use of green manure. However, farmers did not use these manuals as their primary source of information; farmers did not consult organic standards, nor made any reference that their activities followed these guidelines. Instead, their experience worked as a source of

reference to connect with the organic farming practices they learned through their own experience. One farmer illustrated the links he made between organic practices and the experiences of his grandparents:

“I remembered how my grandfather used to grow crops back in Guadalajara. He never used chemicals for pest control nor bought seeds from them [seed companies]. I remember he would put herbs for my grandmother in between the lines of corn plants. He would never grow the same crop on the same piece of land. [...] he would keep part of the harvested corn to have seeds to plant for next season” [SFPS02VP].

Another farmer said:

“As I said to you: our ancestors grew crops with the help of the moon. It was purely empirical knowledge, they knew what they had to do. The technical terms they did not know. They only knew that this was the way it worked, see” [SFPS04PMB]

Farmers were also aware of the inputs and chemicals they can use and those which are prohibited. One specific topic that emerged was how to make land eligible to be certified organic. Farmers were very conscious of the requirements land must fulfil to be certified e.g. they pointed out that pieces of land that were used to grow conventional produce, (with chemicals), would have to start a transition period of three years with organic treatment. Idle land could be certified right away, so long as the soil was tested, and neighbouring crops were within certain distance to prevent cross contamination.

These two accounts shed light on the relevance of farmers' experience for learning, and how the interpersonal dimension acts as the vehicle to transfer the information, placing standards as a source of secondary reference. Codified information was used to know what they needed to do. However, it

was not used to learn how to carry out the organic practices. What farmers knew from their grandparents' and ancestors experience provided judgement to realise that such practices were doable and meaningful as their grandparents had done the same and obtained effective and reliable results for their crops. Some explained to me how their grandparents used to plant different kinds of crops in between groves of corn and others said that their grandparents never grew the same crops on the same piece of land. As they provided these examples, they themselves realised that what their ancestors did was biological control and crop rotation. These experiences helped them foresee that carrying out organic farming was practical and a situation they could deal with.

To make sense of these standards (codified information), the experience of other farmers played an important role. This is because farmers value the effort of going through the process of learning, which reassures them what they need to know comes from someone who knows how to do it also. The comments below show how important it was for farmers to give and receive advice:

Q1: Obviously, if you make no recommendation, it will not benefit the farmer, right? The farmer will not be able to comply with the organic standard. [SFPS01COOR2]

Q2: The Area co-ordinator gave me the manual for organic certification, but it was his experience which really helped me understand. [SFPS05CM01]

Q3: when I started, the Area co-ordinator gave me a book to know about organics- [but I think I lost it-. What really was useful to me was his experience. [SFPS05PM01]

In Q1, the Area co-ordinator expressed that for him, it is important to give advice to farmers. As a competent farmer and technician, the Area co-ordinator knows farmers' context, and understands how to pass on knowledge with advice, knowledge through his own experience. On the other hand, Q2 and Q3 clearly show that farmers value the experience of the Area co-ordinator as a farmer who knows how to deal with manuals, organic standards, and technical books. Through interactions, farmers receive the verbal advice of the Area co-ordinator on how to carry out organic practices for them to comply with the standards.

While some farmers valued the experience of other farmers and used that experience to reshape their knowledge, other farmers were resistant to learning from others. One farmer described how his 30 years of experience on conventional tomatoes had created certain barriers about organic agriculture that took time to disassemble. In contrast with other farmers, this farmer went to university to study agronomy. In his narrative, he had no prior experience of agriculture before university. On the contrary, his experience was built up on his university education. Up until 2010, his university education was his source of reference for managing organic agriculture. He stated that he learned how to grow organic crops after a year of being part of the SPO, saying "*in conventional agriculture what you do is feed the crop, whereas in organic agriculture you feed the soil, this took time to understand*" [SFPS08PM]. He thought that it would only be necessary to use organic inputs and treat the crop as conventional. He explained that the Area co-ordinator insisted that he should feed the soil. His experience in conventional agriculture dictated otherwise:

"Then I would take the organic fertilizers; I wanted to measure how much I would need for it per million parts. I started thinking that it was possible. What I did was to stock the

dripping system because I wanted to fertilise the plants as much as anyone would do in conventional agriculture and the truth is it didn't work. The tomatoes would go yellow and decay". [SFPS08PM]

As a result, he thought he would strengthen the tomatoes, but instead he weakened the plants and negatively affected the yield and availability of produce. Another counter-effect was the projections of future availability of produce, thinking the tomatoes would behave the same as conventional ones. The experience of other farmers made him realise that the crops would not yield product much longer than six months if he did not feed the soil sufficiently to sustain the crop. He said that the following year he still insisted on the same management because his 30 years of experience on conventional tomatoes meant that he resisted the new practices. Eventually, he had to reframe his whole agricultural experience.

In summary, as it has been discussed in this section, farmers' experiential knowledge is the base for learning, and to develop an understanding of the technology they were engaged with; the production of organic products. This experiential knowledge is applied to make sense of, and act in new situations. Learning in SFP/PO farmers consists of changing their own views and previous experiences of what it was for them to carry out agricultural practices. As they entered a new set of practices, which they had not done previously, for them to go through learning, they needed to make sense of the new way of doing agriculture for them. By receiving advice and drawing on the informality of SFP/PO, farmers make sense of the information contained in the organic standard using experiential learning, from the advice of competent farmers. Within their level of participation, farmers generate knowledge,

shape existing one, and with interactions with other farmers in the periphery, disseminate it.

7.4 Social Interaction

It has been suggested that social interactions among actors enhance the ability to innovate and capture greater value on consciously pursued joint actions (Schmitz, 1999). Further, a growing body of research has suggested that organisations able to successfully transfer knowledge are more productive (Inkpen and Tang, 2005, Saliola and Zanfei, 2009 in Lowitt et al. 2015). Learning by participating farmers in SFP/PO was characterised by interactions between competent farmers and novice farmers. These interactions were regarded as the main vehicle for a) knowledge sharing, and b) expanding experiential learning of novice farmers. These interactions shed light on the social learning, specifically who, how, and with whom learns, and the purpose of that learning. Social learning places the focus on knowing, that is, interactions with the things of the social and physical world, where knowledge is socially constructed (Blackmore 2007)

In this section, I argue that the interactions involved in the learning are explained by the combination of three elements i) the Nature of communications ii) temporal aspects and iii) the nature of social ties (Amin & Roberts 2008). These interactions are linked to the context in which farmers conduct their agricultural activities. One farmer said it *“it was a natural learning [...] it was a situation of waking up early morning together and carry out the cultivation activities [preparing the land, soil fertilization]”* [SFPS01COOR1].

This view surfaced mainly with respect to the lack of experience they felt they had regarding organic agriculture they needed to know, as they had no actual practical experience, neither their neighbours, nor relatives. Co-location in farmers learning was important, as the former Area co-ordinator said *“everybody wanted attention. You must show them that you’re one of them. You must be their friend even a father or a brother. You have to get into their minds because that is the way they learn”* [SFPS04IT01]. Therefore, understanding the nature of their communications, how long those communications lasted, and type of ties they developed with one another throughout the interactions, explains their experiential learning of SFP/PO’s farmers to develop the skills for growing organic crops and certify them.

7.4.1 Nature of Communications

Based on the data collected, I have identified two types of social interactions; face -to -face interactions and interactions by phone. Farmers interviewed explained how they learned to prepare compost, how to fertilise the soil and use biological control methods. A recurrent theme in the interviews was that farmers needed to know about preparing and using compost, fertilization and biological control to obtain organic certification. The nature of communication was Face -to -face interactions and co-location of experienced farmers with novice farmers. Face -to -face interactions enhanced farmer learning and fulfilled their perceived need for experience in organic agriculture. Knowledge was shared through *in situ* examples which illustrated organic farming methods in the context of the farmer’s own land, environment and with the use of local inputs. The experience gave farmers the opportunity to understand the meaning of new practices, and thus expand their experiential learning.

A common view amongst farmers was that they were learning from the best farmers and they received complete information. One farmer said:

“they [competent farmers] explained to us what that was [organic farming practices], the correct way of how to do it [...] there were many small tips that you received directly from them [competent farmers] without a third party, and that it’s how you learn a lot” [SFPS04IT02].

Talking about compost preparation, a farmer said:

“Imagine that on the floor we would use dried cactus sticks, and with that, we would make a sort of bed. On top, Marcos [competent farmer] would put a layer of manure, and then we would follow him. Then on top of the manure, he would put a layer of straws and then would do the same until the “cake” reaches one meter high. They would be ready in three months. Before the three months would do checks on them and move the layers to air it [cake]”. [SFPS02PJJ]

Another example of Face -to -face interaction regarded biological control. A farmer stated:

“The entomologist came twice a month to carry out inspections with all of us [farmers]. We were with him in the fields identifying insects that were natural enemies of the crops we grew. He taught us that yellow sticky traps were appealing to insects. We changed the traps together. He told us to take pictures of insects and send them to him via email.” [SFPS02IV].

By describing the steps of compost preparation, novice farmers unveiled what they learned from Face -to -face interactions. The narrative illustrates how competent farmers would use local materials to show novice farmers what, and how to use those materials to prepare compost. In the narrative of the

participating farmers, the word *imagine* was the form they found for me to visualise the interactions between competent and novice farmers.

Furthermore, face -to -face interactions and practical examples allowed novice farmers to gain an understanding of the principles and importance of organic farming practices. Farmers understood that all the organic matter in compost would help enrich the soil, making the relationship that exists with microorganisms in the soil clearer, ultimately benefit the plants. The development of an understanding of novice farmers is also supported when they compared compost with salt-based fertiliser³² and exclaimed that in the short term it would help the plant but eventually, in the long term, destroy soil fertility.

With respect to biological control, for example, novice farmers learned from the entomologist in the fields, the relationship between insects, differentiating between pest insects and natural enemies. Farmers saw the importance of creating conditions to encourage host insects (beneficial insects) and control their populations to grow organic crops. One farmer put it this way: *“we follow the mission of the SFP/PO, having healthy soil, for healthy crops for healthy customers”* [SFPS02PAN]. By learning biological control methods there would be no need to use insecticides. The example of trapping insects in the field, farmers narrated their understanding of what pests are, stating that such term (pests) was wrong. Co-location and Face -to -face interaction allowed this knowledge exchange. They saw the importance of creating conditions to host them and control their population to grow organic crops. There would be no need for insecticides by learning biological control.

³² Artificial fertiliser

While co-location and Face -to -face interactions enhanced learning, there were some farmers located in very remote areas that made Face -to -face interactions difficult or impossible, e.g. Sonora and the Northern Baja Peninsula. Here, knowledge sharing required a different nature of communication and interactions were carried out by cell-phone calls. Novice farmers that interacted by cell phone with competent farmers had a distinctive learning. They drew substantially from their own conventional agriculture experience, as they did not have the examples to contrast their experience and understand the meaning of the organic farming practices.

A common view amongst these distant farmers, with a conventional agriculture background, was their lack of understanding of the philosophy underlying organic farming practices. Farmers assumed that they would only need to apply organic inputs instead of inorganic inputs, without realising the importance of the interaction among the soil, plant, and environment. For farmers, trial and error and constant checks by phone, enabled them to understand the new concepts, and expand their experiential learning. One farmer explained his interaction based on phone calls with the Area co-ordinator regarding fertilisation:

“During the first three years, I called the Area co-ordinator every day. In the daily phone calls, he [Area co-ordinator] insisted much on the principle of providing nutrients to the soil. I told him how I would use the [organic] inputs. He said I would have many difficulties, e.g. the cherry tomatoes would decay because he warned me I was treating the crop as conventional with organic inputs. I told him I had experience and it would work. Every day he asked me to describe to him how the cherry tomatoes looked. My responses were that they are turning yellow. He daily made me recommendations to look at the soil focus the nutrition to it”. [SFPS08PJA].

Interactions by phone only allowed novice farmers to express their reflexions on their difficulties to the Area co-ordinator. Taking the example of fertilisation, phone interactions only allowed one-way transmission of knowledge, without any in-field examples to show how the practice should have been carried out. However, the lack of co-location took novice farmers out of their context, hindering the understanding of the meaning of the practice and the benefits for the crop.

Despite the lack of practical examples and co-location, failures served as means to realise the importance and meaning of organic farming practices. The Area co-ordinator told the above novice farmer that if tomatoes do not have enough nutrients to sustain them, productivity will suffer. The farmer said:

“I struggled a lot, the leaves of cherry tomatoes plants would turn yellow because I was treating these organic tomatoes as conventional, and the truth is I was wrong. The tomatoes were not assimilating the nutrients and they got weak” [SFPS08]CE01].

In another example, a group of women argued that given the distance and difficulties for establishing phone call communications, they had to look for other sources of knowledge to learn how to produce organically. They interacted with a biologist who taught them some organic farming practices. As one female farmer put it: *“we began being advised by the biologists who learned organic agriculture in Cuba. He spent some time here with us to teach how to prepare compost. He used formulas [recipes], he guided us every step of the way and got for the inputs for compost” [SFPN02WF01].*

The biologist even taught them how to prepare compost from bone powder.

They said:

“We were in the wilderness looking for cows’ bones, we grind them with mills and that is how we made it powder and then we mixed with manure and cow milk, yeast and straw. With that we kept them in barrels and prepare bio-compost. It all took us 70 days” [SFPN02WF01]

However, the learning stopped because the biologist lived in a locality three hours away. After this, the women experienced problems with many pests which could not be controlled due to their lack of knowledge of biological control methods. Another woman farmer said *“We had a very strong pest, we were literally invaded [insect infestation]. As we had spinach, apparently this appealed to the insects. In one of the visits, the Area co-ordinator told us to introduce beneficial insects” [SFPN02WF01]*. This case clearly highlights the importance of co-location and Face -to -face interactions between new farmers and competent farmers. In this way, practices are seen, replicated, and assimilated easily by learners, so the learning curve is faster.

7.4.2 Nature of Social Ties

In face-to-face interactions, two *social ties* which influenced learning by farmers were identified. The first one, is the trust on technicians, competent farmers and area co-ordinator. The second one, is the negotiation made between competent and novice farmers to implement new activities. These social ties were important when novice farmers were sceptical about how knowledgeable the competent farmers were.

Sometimes, in the view of novice farmers, competent farmers had no knowledge about the local environment, its materials or temperature. However, novice farmers trusted the competent farmer and considered that they had enough experience to learn from. So, within this context of trust, farmers negotiated the best way to implement the practice locally as one farmer said:

“Marcos [competent farmer] set the example, saying: do it this way. At the beginning, we all were opinionated [had different opinions] about it, we were not totally convinced this was right, even though we never did it before. We had many difficulties getting it right. Before we learned, we burned it [compost]. After many attempts Marcos and we found out that with too much water you burn it, too little and it won't decompose”. [SFPS02PAU]

As this quote illustrates, a negotiation process took place and although they trusted the Area co-ordinator, they also contributed to the implementation of the activity locally, suggesting to Marcos the use of more water and to air the cakes more frequently so that decomposition would work quickly and properly. This did not mean that the competent farmers had lost the trust of the novice farmer. In a way this example reflected the creation of a close relationship based on trust between the parties. This relationship allowed the two-way flow of information and knowledge to adapt a technology locally.

Negotiation and trust between novice and competent farmers was also evident with respect to biological control. One farmer said: *“Because we had to monitor the insects, and send him [entomologist] pictures, he told us not to use alfalfa as a natural barrier because it attracts a lot of non-beneficial insects” [SFPS06IR]*. Instead, they negotiated with the entomologist that alfalfa was the crop they always grew and therefore, they knew it would create conditions to host the

beneficial insects they needed. Farmers perceived the entomologist's lack of experience in the area. However, as this was their first time doing biological control, they trusted the entomologist.

There were also cases where farmers did not trust the competent farmer. Farmers located in very remote areas had sporadic visits and poor infrastructure to establish phone communications with their assessor, so this created a distance between them. One case is the group of farming women. They said that they "*were not happy with SFP/PO*" because they had had weak guidance. Under these circumstances, the farmers used the manuals on quality and organic standards to guide them, but with low success. These novice farmers were not able to develop any social ties with their peers or competent farmers. As a result, one of the farmer women said: *I don't trust any information nor reports SFP/PO is giving us*. They received reports about the poor quality of their produce resulting in the dumping of their produce. Because they were not receiving close guidance, this made them doubt the criteria employed to evaluate their produce. The criteria they were following was based on the operations as stated in the manuals. The lack of social ties was due to scarce interaction of any kind, neither Face -to -face or via cell phones. This scarce interaction did not allow any constructive feedback on how to improve quality. On the contrary, only receiving information on poor quality in the form of reports, de-contextualised the knowledge, and unlinked these women farmers from further improving their skills on improving quality.

Another aspect that broke the relationship between the women farmers and the SFP/PO was the fact that for some time, the product's price dropped significantly, and as a result the farmers had to dump produce in the field. It is important to note that market prices vary throughout the season year. In this

case, the price was so low that harvesting would have meant a loss of money. Consequently, these farmers ended up owing the money that was invested in them to the Global Buyer, which took another season to pay back. Although some farmers agree with the way relationships are set with the Global Buyer, it is evident that for others, such as this group of farming women, their relationship with SFP/PO represents an economic disadvantage beyond the benefits of availability of information, access to US markets, availability of inputs, and financial resources. The specific circumstances of this group of farmers, i.e. incipient telecommunications, remote and long-distance location and therefore sporadic Face -to -face interaction and lack of constructive feedback from the Area co-ordinator placed them in a position with fewer learning opportunities.

7.4.3 Temporal Aspects

The time that took for novice farmers to learn organic farming practices (soil fertilisation and biological control), was between one to three years. During this time, the communication between competent farmers and novice farmers was constant in those cases where they had established social ties to transfer information. For example, one farmer said that when learning, the Area co-ordinator was teaching him and his family all they needed to know: *“he was here with us during the first year³³. He literally lived here with us, waking up early morning with us and teaching here in the land”*. During this time, the farmers built their competence as they expanded their learning of the new practices, establishing a link with their own agricultural experience, and developing an

³³ In this context, a year means the season year. The period goes from eight to nine months, time in which farmers grow, harvest and ship their produce to the GB. This time periods often goes between Septembers of one year to April-May of the following year.

understanding of those practices in relation with their own environment. However, there were follow-up meetings that took place after farmers were initially trained in soil fertilisation and biological control. One farmer said:

“They [competent farmers] were visiting us around nine years³⁴. They came to see how we were doing and then, little by little they came less often, trust that we were producing as they wanted and simply ship produce to San Francisco” [SFPS02PGR]

In this frame-lapse, the farmers learning allowed them to increase in confidence and become attuned to the requirements of the global buyer. In phone call interactions the *temporal aspects* could last three years in the most intense part of novice farmers’ learning. One farmer said:

“We’re still learning, even today, after three years. Maybe before, during the first year, I was calling the Area coordinator three to four times a day at least. Afterwards, time passed, and I called him one or two times a week. Then it was only one call a month” [SFP08CEO].

Interactions via phone call took longer, as opposed to face-to-face interactions. Phone calls did not substitute the absence of co-location with competent farmers. However, phone calls made it possible for verbal communication to facilitate learning. Phone calls gradually replaced situated knowing by trial and error, as novice farmers gradually tried to gain the skills on their own. As previously discussed, farmers tended to treat crops as conventional, taking longer for them to developing an understanding of organic practices in relation to their own environment.

³⁴ For a period of nine years.

Furthermore, when considering looking at the group of farming women, where they have faced limitations of communications, the temporal aspects of learning has no time lapse. On the contrary, it is a slow and ongoing process. One farming woman in the group said explained why:

“See, we are so far away from Maneadero locality. The Area co-ordinator needs at least eight hours driving. Because of this, he only comes once a month if we are lucky. He comes approximately once every two months. To make things worse, if I need to talk to him for any reason, I need to climb a mountain to catch signal in my cell phone to talk to him”
[SFPN02WF01]

The difficulties of establishing a proper connection to use cell phones slowed down their learning. In this case, learning has been insufficient. As previously discussed (section 7.4.1) co-location with examples had to be procured from people outside SFP/PO. The distance and difficulties in communication allowed only little understanding of the practices. These circumstances have not allowed them to fully develop an understanding of practices in relation to their own environment. This is clear, as they have been experiencing pests, which they have not been able to properly manage, negatively affecting the quality of their produce and their income.

In summary, social interactions affect the learning in SFP/PO farmers. In Table 10 I present a summary of the Social Interactions. Face-to-face interactions enabled farmers to develop a sense of the practices and facilitated an understanding of the importance of carrying out those practices, especially the relationship with their land, and the positive effects on their crops. In addition, with face-to-face interactions, trust develops among competent and novice farmers, which opens space for negotiation between the experiential knowledge of both, ultimately enabling the co-production of new knowledge.

In contrast, interactions by phone are less effective, in that farmers' lack practical experience within their own situations, created conditions for slower learning. The slow pace of learning also had less certain social ties. In one case, despite the lack of practical exemplars and co-location with competent farmers, trust was still developed. However, in other cases, relationships of distrust prevailed. The temporal aspects also affect learning, as farmers need to develop skills, the time it takes for developing the sensing and understanding of the practices is one to three years.

Table 10. Social Interactions in SFP/PO

Nature of communications	Nature of social ties	Temporal Aspects
Face -to -face	Trust and co-production of knowledge	One year to three years
Phone Calls	Distrust with transition towards full trust	One year in the most intense part of the learning and ongoing process

Source: Data Collected in fieldwork

7.5 Summary

This chapter addressed the research question *how do smallholder farmers in SFP/PO learn skills for production capabilities to become part of the Global Value Chain?* The analytical categories of a *knowing in action* framework were used in this analysis for understanding how smallholder farmers in SFO/PO learn. Despite SFP/PO being a value chain, where smallholder farmers are integrated in agricultural activities for producing organic produce, SFP/PO has organisational dynamics in which social interactions enable learning as Communities of Practice, for developing skills for producing organic crops, which are reflected in production capabilities.

The analysis of learning in SFP/PO is pertinent to understand that production activities (such as organic practices) contribute to the development of production skills, leverage power, and strong market linkages in the agricultural sector. SFP/PO sheds light on social interactions and engaging with novice and competent farmers in value chains, contributes to this argument by identifying and explaining how social interactions among farmers enable learning for production capability development. In this case study, farmers learn in *social interactions* by engaging competent and novice farmers to gain the implicitness of organic farming technology. The nature of communications expands farmers' experiential knowledge. This type of knowledge helps novice farmers understand and act when learning to deal with new situations such as organic farming practices. Social interactions also create *social ties* of trust and co-production of knowledge among farmers. Table 11 the analysis of learning in SFP/PO. The case study also shows that the lack of social interactions can slow down the expansion of experiential knowledge negatively impacting the learning for some farmers and thus generating untrustworthy social ties.

Table 11. Learning in Farmers in SFP/PO

<i>Activity</i>	<i>Organisational dynamics</i>	<i>Type of Knowledge</i>	<i>Social Interactions</i>		
			<i>Nature of Communication</i>	<i>Temporal Aspects</i>	<i>Nature of Social Ties</i>
Organic Agriculture	Juxtaposition of modular governance with communities of practice for learning with flexible movement from periphery to full participation	Experiential Codified Information	Face -to -face interactions for organic practice Phone call interactions for organic practice	one to three years Three years and ongoing process	Trust and co-production of knowledge as well as and untrusty

Source: adaptation from Amin & Roberts (2008)

In the next chapter I discuss how farmers continue their social learning, by explaining how farmers take leadership, create connectivity, and build on their practices which allows the creation of new products such as their own organic seeds.

Chapter 8: Technological Change, agenda for continuous learning.

8.1 Introduction

In this chapter, I analyse the Technological Change that occurs among smallholder farmers in SFP/PO. According to Lall (1992;1993) Technological Change is understood as the continuous process of absorbing and creating technical knowledge which enables firms to improve, master, or adapt a technology to new conditions. In previous discussions, for example, chapter 6, I discussed how farmers in SFP/PO define what constitutes a competent organic farmer based on the activities they undertake, and how they display competence at three distinctive levels which prove they are part of the community.

In chapter 7, I analysed how smallholder farmers in SFP/PO learn the skills for producing organic crops. Specifically, I explained how learning took place *in situ*, based on social interactions which enabled the creation and absorption of experiential knowledge for organic farming practices. In addition, I argued that farmers' learning was guided by social ties. These ties enable the internalisation of experiential knowledge, and negotiation of new knowledge with competent farmers. I specifically focus on the continuous effort of learning that farmers in SFP/PO make, creating experiential knowledge contributing to the development of their production skills and enabling further innovations.

The analysis in this chapter answers the research question *how does the technological change occur in farmers' production capabilities?* The analysis links to the aim of this research and contributes to the understanding of the development of production capabilities of participating farmers in the Global Value Chain. To address this research question, I developed the following argument: in SFP/PO, farmers, as practitioners in the community, have an agenda which enables them to continuously embrace an effort for learning. By embracing in the effort, farmers define their learning projects. The effort is driven by leadership by farmers, their connectivity, and by brokering relationships among them. Consequently, farmers as a community of practitioners can support each other on their learning from basic production capabilities (Technological Capabilities) such as cultivation labours, to more complex tasks like developing their own seeds and technical solutions.

In analysing the agenda of SFP/PO for continuous learning and skills development, in the first section I examine the leadership exhibited by farmers that is present throughout the value chain. Specifically, I look at the role of farmers in carrying out this leadership to motivating novice farmers in the development of production skills, the support for obtaining the necessary certifications, and decision making for planning planting in future seasons. Secondly, I examine how connectivity among farmers, and the brokering of their knowledge enables the development of technical solutions, and further supports the agenda for continuous learning. Thirdly, I examine the learning project that SFP/PO has implemented for developing new products, and how a critical mass, consisting of competent farmers, area co-ordinators and geneticists, constantly assess inputs, such as seeds, to improve and create new materials (seeds) that comply with the requirements of customers and farmers.

Finally, I present a summary of the chapter and the answer to the research question

8.2 Production activities

Wenger (2000) argues that Communities of Practice depend on internal leadership and enabling the leaders to play their role in helping the community to develop (p.231). It is important to point out that for this analysis, *leadership*³⁵ in CoP is used to describe the role of competent farmers and area co-ordinators in motivating other farmers in their continuous learning. The leadership role of competent farmers is important for keeping continuous learning and collaboration throughout SFP/PO.

Monitoring the requirements and needs of the customer base and, at the same time, considering the needs of smallholder farmers, are aspects where motivation for continuous learning helps to push the learning agenda of the value chain forward. Wenger (2000) also argues that Communities of Practice must decide the type of activities it needs. In the case of SFP/PO, learning production skills is an activity that involves a constant engagement among smallholder farmers to provide support and supervision on cultivation for organic crop production and certification activities. My argument in this section, is that farmers play leadership roles for motivating other farmers throughout the value chain to continue learning production skills.

As Communities of Practice, leadership in SFP/PO enables continuous skills development for production capabilities in smallholder farmers which

³⁵ I am aware of the existence of literature about leadership, and by no means is it the purpose of the analysis to further elaborate on this topic.

particularly did not have the necessary skills in organic agriculture and, in some cases, in agriculture in general. As these types of activities require continuous effort for learning, leadership maintains an understanding of the enterprise of SFP/PO. Leadership also enables the cooperation, mutual responsibility, sharing of experience among smallholder farmers across their geographical locations, and the experience of other farmers. Therefore, leadership in SFP/PO motivates and enables constant effort for learning as well as how to do the activity, and comply with demands of customers, global buyers, and international certifying agencies.

The accounts of farmers shed light on the role of leadership to engage with other farmers and guide the collective effort, enabling continuous learning for the development and improvement of production capabilities. In this regard, central to farmers' continuous learning in production skill development, is the alignment to the understanding of SFP/PO enterprise, a view point that surfaces among experienced and novice farmers. For example, an experienced farmer, the Director of international farming says:

“A considerable part of our job is to keep the relationships among smallholder farmers [...] our motivation in particular is that smallholder farmers become good organic farmers and keep them up to date with the organic production programme [SFPDIF01]”

The Director of International Farming highlights the importance of keeping the community together and maintaining the motivation for continuous efforts for learning. This account shows his leadership, which is focused on promoting the learning of farmers in organic farming practices throughout the value chain. Specifically, his role as motivator in the community to constantly engage with farmers is clear. His role consists of visits to all smallholder

famers across Baja Peninsula, to pass on the needs from customer and farmers, and constantly update the knowledge needed to improve the skills to stay competitive in the market. As a result, his leading role, motivation, and the keeping of relationships enables experienced farmers to be in interaction with supporting novice farmers in quality assurance, identification of risks, and organic farming practices.

However, leadership is also seen through commitment and engagement from other farmers. The Area co-ordinators also play a role in the continuous learning effort and enhance motivation among participating farmers in different geographical locations. For example, the area co-ordinator of Southern Baja Peninsula put it this way:

“I tell them [farmers] all the time in our meetings, look, imagine that you are in a supermarket where there are 20 different brands of cherry tomatoes. That parent may prefer SFP/PO brand, because of the taste, because they know we work with small-scale farmers, they consider our social purpose. And among those 20 brands, yours was chosen”
[SFPS01COOR1]

The leadership of the area co-ordinator explains the importance of reminding the mutual engagement and responsibility among smallholder farmers in southern Baja peninsula to maintain quality. His role as motivator draws on elements of a shared activities, such as meetings and exercises to place farmers in scenarios, to help them understand how competition happens, and what differentiates their produce, and what consumers prefer. This continuous effort ensures the compliance with international standards, the quality of produce. Notwithstanding the importance of the role played by leading farmers, such as the Director of international farming and area co-ordinators, leadership is also taken by other farmers in remote areas. For example, one

competent farmer narrated how he supports continued learning among novice farmers:

“I support farmers when they have issues with growing or handling a particular crop. I tell them see, let’s do it this way, what do you think? And they say yes, farmers cooperate and we all see each other as allies” [SFPS03CM03].

The leadership shown by the farmers, supports the leading role of area coordinators and is aligned with effort of promoting continuous learning of organic farming practices. This narrative illustrates the cooperation among farmers in their taking care of the day to day activities, by showing concern for the success of the practices of other farmers. Specifically, it helps maintain the value perceived in the markets as organic produce, elements of the enterprise that farmers are constantly reminded of.

Novice farmers also reflected on their leadership and elucidate on their motivation for continuous learning. One of the novice farmers said: *“We established a relationship with SFP in San Francisco, and they made a technician available as if he were a doctor [MD]” [SFPS04PR]*. The quote is indicative of motivation to engage and create relationships among novice and competent farmers. Their leadership allows continuous learning for the improvement of their organic cultivation practices (soil preparation, soil fertilisation and maintenance). The fact that they pursued a relationship with SFP, shows the motivation of novice farmers on their understanding of the practices with the guidance of a competent farmer. It also illustrates the continuous learning needs.

By taking leadership, farmers in remote locations can make efforts to reinforce farmers’ learning, to keep up to date with their skills to comply with the

feature of an organic product and take care of their practices. Having manuals and the need to read them are aspects which are still out of the context of rurality. In simple terms, smallholder farmers are not used to following instructions from a book. This simple book becomes a 'big deal' because written instructions are what they call 'dead letters' or because of comprehending complicated standards. Additionally, farmers explained that their understanding of complying with organic standards and leadership by procuring other farmers. With the interactions with other farmers, their motivation to look for help makes them have a clearer idea of how the practice must be carried out to take care of their farming operation.

One farmer said: *"Jumping from conventional to organic is a process. For example, your soil must have a certain amount of time of no use. In this case, it was 3 years of no use. From that onwards, the learning started"* [SFPS06IR01]. This quote shows the realisation that conversion to organic farming requires constant effort. It requires the production of a crop with different qualities from those of a conventional crop. And as such, farmers show their leadership by following the principles with conviction and enhancing customers' recognition of loyalty.

For example, one action that emerged as part of the leadership, is creating visual material for the documenting of the practices, i.e. creating visual material. The visual materials consist of illustrations, like pictures and power point presentations. For example, Picture 1 is one example of illustrations of the five different qualities customers want from cherry tomatoes. This information is passed on to all smallholder farmers. However, there are other types of practices which have more demanding requirements, or require major attention to detail, such as organic and food safety certifications. For this type

of practices, there are power point presentations provided in the form of talks. The talks are given twice during the production season. To ensure farmers continue to pay attention to certifications, farmers are briefed at the beginning and end of the season. With this, farmers become aware of what the certification is about and all that is involved, especially given that requirements may be updated from time to time.

In both instances, this passing experiential knowledge is designed as carefully as possible so that farmers can incorporate it, link it with their own context and understanding thus building their knowledge-base. Competent farmers such as the Area co-ordinators, together along with the staff from the Coordinating Firm, design the materials in the form of power point presentations and printed materials. However, it is important to highlight that this is led by the sales department, and Director of International Farming (DIF) in San Francisco Produce in the U.S, due to close interaction they have with the customer base. Therefore, the constant interaction with the customer base allows them to capture vital information of customer needs. In addition, along with the leadership and support of DIF, those needs are translated into visual material so farmers can understand what it is expected.

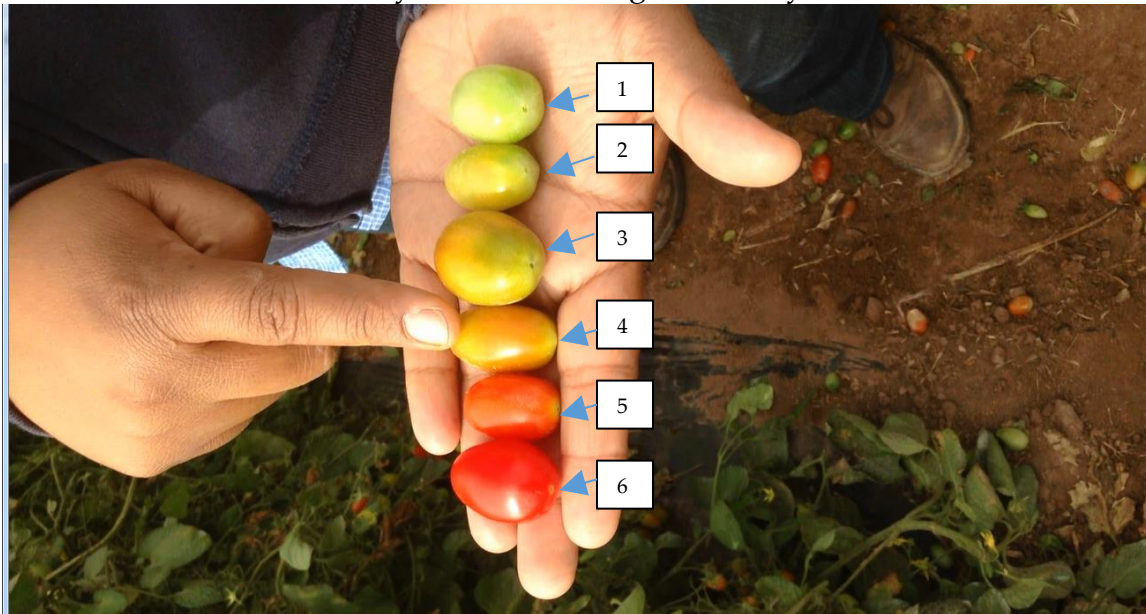
One farmer in central Baja Peninsula said: *"Quality is based on classifications related to size, consistency, colours, residue levels, nutritional balance [SFPS04IT]. This quote exemplifies the understanding of farmers of what quality is. It sheds light on how the farmers relates his understanding with the features that produce must comply with. Taking the example of one of the most demanded products, organic cherry tomatoes, one farmer said: "Say, they [San Francisco Produce] want numbers 4 and 5, or there might be a customer that wants number 6, which is the brightest red and sweetest" [see picture 1][SFPS05CM01] The*

narrative tells us how the illustration helps as guiding and visual support as to how the crop should look when harvesting according to the requirements of customers. This action is viewed as important because as customers adjust their quality requirements depending on the preferences of final consumers³⁶, farmers need to be updated.

For instance, picture 1 illustrates the level of ripeness required according to the needs of customers in the USA and around the world. In addition, by giving instruction *in situ* to farmers in need, farmers become knowledgeable about the characteristics of crops. Moreover, during the winter time, which marks the beginning of the season, customers demand as much produce as possible, due to seasonal festivities. Therefore, the market for cherry tomatoes accepts produce with qualities ranging from 1 to 6. However, as the season goes on, the standard gets stricter, ranging only from 3 to 5. Produce that does not comply with this standard will not be accepted. Therefore, the leadership taken by the sales department, DIF along with the understanding of farmers, elucidates the continuous effort of learning from novice and competent farmers. The leadership performs periodic visits to make sure there is an internalisation of level of ripeness in relation with colours to meet the requirements of customers.

³⁶ It is important to point out there is a difference between customers and consumers. On the one hand, customers are the direct buyers of SFP/PO. They are mainly medium and large retail stores (supermarkets). On the other hand, consumer are people who buy the produce at retail stores.

Picture 1: Quality measures of organic cherry tomatoes



Source: Data collection, 2015

A recurrent subject among farmers was their need to achieve standards for certifications such as organic, food safety, and Fairtrade. The importance of certifications as documents, lays on the acknowledgements from national and international certifying agencies. Leadership is relevant for the farmers to be able to have these acknowledgements. As part of the role of the DIF said:

“We are currently working with four farm zones [across Baja Peninsula] with [...] Fairtrade certification with plans to add a fifth zone toward the end of June [...] by the end of 2015, we plan to have all our farm zones in Baja California certified, representing over 3,000 acres of farm land” (Abcarian 2015)

For achieving certifications in SFP/PO, leadership of DIF allows to focus it in a collective way, with efforts to allow smallholder farmers to be part of value added activities. Leadership also enables to set up the general objective of having all farmers certified across geographical locations with specific times. This is particularly important as SFP/PO has divided the southern Baja peninsula into five zones. These geographical locations enable to address

certifications and consequently, having the general objective of achieving more certifications for farmers, reflects a leadership that increases the chances for more farmers to develop skills in organic farming practices and access markets.

In taking further the leadership for achieving certifications, the area co-ordinator of northern Baja said: *“here we make sure every farmer keeps their land free of chemicals. [...] We have to make sure they follow organic standards”*[SFPN01COOR]. Here, leadership drives the efforts in the northern geographical location and illustrates the continuous learning effort and support for farmers. When looking at remote areas, particularly, another novice farmer also provided an account in line with the area co-ordinator:

“He [the area co-ordinator] helped me a lot and with field chief, who although has not technical training, has a lot of experience and sometimes knows more than I, that I have a degree. I know the theory, but not practice”. [SFPS05CM02]

The quote also indicates the farmers in her leadership role draw from the shared repertoire and contributes to the learning effort of both farmers, novice and competent work together. As a result, SFP/PO farmers are continuously making the effort to support novice farmers in passing on experiential knowledge. This effort enables the continuous development of skills in novice farmers given their importance when obtaining organic certification.

Another aspect of leadership in SFP/PO is the use of group certification. It consists of including the organic operation of novice farmers in one combined certification, where the area co-ordinator takes full responsibility for satisfying the requirements of the certification. Group certification is part of the elements of shared repertoire and provides novice farmers the space and time to learn

the requirements of organic farming certification. In the longer-term, farmers will also be able to gain their own individual certification. In this regard, the area co-ordinator said: *“we want every farmer to have their own certifications, because they are assets for them. In the moment they wish to expand their horizons they can do it”* [SFPS01COOR01].

Some of the farmers interviewed stated they acknowledge that they must have the skills to carry out all cultural labours and thus apply for their own certification, while others still felt the need for time to gain more confidence and pass the certification. One competent farmer said:

“during the two years, I was certified as a group while I was learning, but as I learned I felt confident enough and this year I got my own organic certification and I am working on the food safety and Fairtrade as well to get them in the coming years” [SFPS06IR01].

In contrast, other novice farmers, still feel the need to be certified in the group certification. *“I know we already have the knowledge to pass the certification on our own, but I feel we need a bit more time to practice”* [SFPS05PJC].

Although SFP/PO provided a leadership to support farmers in their obtaining their organic certification, additional activities were still more active leadership is needed with those farmers that do not have it yet. In this regard, specific actions are taken, for example, the coordinating firm is directly responsible for the certification of those farmers. One of the cooperatives started operations in 2001; the coordinating firm along with other experienced farmer, supported the operation of that co-operative of smallholder farmers. It is important to highlight that the co-ordinating firm took full responsibility of this co-operative’s organic certification. Now that the farmers of this co-

operative developed the skills, they have taken full responsibility of their operation, and in July 2015 passed the organic inspection and therefore were granted the organic certification.

Another aspect of farmers' leadership is that it enables them to make decisions about planting for the future season. During the interviews, farmers stated that their participation involves decisions making for planning the production season. Making decisions to reflect the development of skills and provide the leverage power for negotiations between the area co-ordinator and the farmers. A common theme among farmers in general, is the support received during the planning of the following season. Competent and novice farmers interact with one another, and especially with the area co-ordinator and the Director of International Farming. As the area co-ordinator states:

"It's not a written plan, ok? It is a plan that naturally goes along the way. The question about the money has been long done this way. Throughout the years we have made adjustments. All farmers have records [...] depending on their production capacity, their volumes we can forecast their availability for the season, how much money they would need".
[SFPS01COOR02]

Leadership is shown from novice and competent farmers when planning the next production. There is no written plan, and it develops organically through the interaction between farmers and Area co-ordinators. Based around forecasts of demand and the individual farmers capacity for production.

The role of farmers is to discuss and negotiate the strengths and weaknesses of each smallholder farmer. The display of leadership enables them to negotiate based on their experience and the skills they have developed on

certain crops e.g. some farmers are good at producing herbs, others cherry tomatoes. As the area co-ordinator said:

“I can give you the garlic example. We told and advised farmers in Firm A to keep sizes big, that they should have harvested big garlic due to the preferences of chefs and their high prices. What happened was that only one farmer did it and has been the only one that supplies this type of garlic”.
[SFPS01COOR03]

The quote sheds light on elements of leadership displayed by competent and novice farmers. On the one hand, the strengths of farmers are highlighted with the features of crops i.e. garlic, that were appreciated. On the other, it displays their weaknesses also by advising the farmer on how to keep up with the quality required. Although only one farmer complied with the standard, the leadership and role of both farmers during the negotiation resulted in technical and financial allocation. Thus, in this cooperative, only one farmer was able to carry out the production activities for garlic. Additionally, this farmer enhanced motivation and learning among the rest farmers in the cooperative and the region. One farmer of this co-operative further explained:

“yes, indeed, the same legislation, be that of United States, or even one important customer of SFP say that if by this date you do not have this crop certified or have not met this requirement, this farmer will have to decide whether to comply or not with this requirement to continue selling that crop or changes crop pattern”. [SFPS05P]C]

Openness is a characteristic and feature of farmers to try new things, for example, to comply with regulations that don't apply in their home countries. This openness facilitates the learning with competent farmers. Furthermore, smallholder farmers are willing to making the necessary efforts to comply with any legislation in both, national and international, specifically in Mexico and

US. As indicated with garlic, only one farmer wanted to follow such suggestion. It was his decision to do so and to take advantage of the continuous demand for that type of garlic. Hence, only that farmer decided on his own to make the extra effort to make it at the customer's request.

SFP/PO provides the systems that enables both learning from hierarchy but also from fellow farmers. Leadership in SFP/PO enables smallholder farmers to continuously learn from other farmers within the dynamics of the social elements of the learning in SFP/PO. Leadership enables a continuous development of skills for organic production in smallholder farmers who particularly did not have the necessary experience in organic farming and, in some cases, in agriculture in general. Throughout the value chain, leadership maintains the understanding of the enterprise of SFP/PO, enhancing the cooperation and mutual responsibility among smallholder farmers across their geographical locations, and the passing on of experience of other farmers, i.e. supporting farmers in obtaining their organic certification and in decision making.

Furthermore, leadership is seen throughout the value chain. Farmers across geographical locations also support the leading role of area co-ordinators and align their leadership to promoting continuous learning of organic farming practices. Leadership draws on elements of shared repertoire that ensure the compliance of international standards, i.e. documenting of the practice with visual material. It helps to keep the community together, where the role of farmers as motivator enables constant engagement among farmers.

8.3 Technical Solutions

In SFP/PO *Technical solutions* are the result of farmers' experiential knowledge circulating throughout the value chain. Wenger (2000) argues that CoP is about enabling a rich fabric of connectivity among people. In this regard, in SFP/PO has developed a robust and wide fabric of connectivity in which farmers interact, enabling the flow of experiential knowledge and other resources such technical and financial. Furthermore, Wenger (2000) argues that in CoP, brokering relationships between people who need to talk to each other, or between people who need help and people who can offer help, builds connectivity in the community.

In SFP/PO there are farmers who are motivated by the idea of improving their brand, making their produce better to secure a long-lasting loyalty of their customers in the USA market. I argue that as farmers learn the organic farming practices and carry on with them, they master the practices, and can improve their own production activities and farming operation. These improvements are acknowledged by competent farmers and they broker these improvements throughout the community. This enriches connectivity among SFP/PO by brokering experiential knowledge exchange which improves their organic farming practices. The interactions occur mostly among farmers who are within medium participation, and with competent farmers in full participation in the community. However, it does not necessary exclude those novice farmers that are in the periphery.

From the farmers' point of view, they understand the connectivity among themselves. The area co-ordinator of southern Baja Peninsula, as a competent farmer said: *"We all work as a machine. A machine has gears and every farmer is a*

gear. If we all are well tuned, then everything will go normally” [SFPS01COOR01]. This view and analogy of farmers as a machine sheds light on the robustness and wide connectivity throughout farmers across the peninsula of Baja Mexico.

As a leading farmer, the area co-ordinator takes the responsibility of making sure the network of farmer stays connected by identifying the issues related with cultivation or certifications, so that the operation of SFP/PO runs according to the season’s plan. However, given that the area co-ordinator is a farmer himself, he manages the improvements farmers implemented in different farming operations. The area co-ordinator commented about brokering farmers’ ideas: *“I am conveyor between farmers. If I see some farmers are doing something that can benefit others, I spread the word”* [SFPS01COOR01].

For example, among these views, which surfaced mainly in respect to improving the growth of cherry tomatoes (including germination), pest control, and crop management, the improvements come from ideas of smallholder farmer which are taken and carried out throughout the community. On the one hand, farmers considered every recommendation given by competent farmers, as one farmer said: *“For example, when the area co-ordinator taught us that we should put three plants per meter, that you have to prune the first tomatoes for the plant (of tomatoes) grow. That was the idea we (farmers) had”* [SFPS06IR02]. On the other, farmers found new ways of carrying out practices that became improvements and in some cases solutions to problems. Farmers constantly stated that if one knows how to solve an issue that others have, then they tell them what worked for them, as this farmer said:

“Then, one day, a farmer said that he let plants grow without pruning them. I followed up on that. That previous technique

we had, we changed it and we had incredible results".
[SFPS05PM01].

Another competent farmer, when asked about acknowledging the improvements of farmers said: *"most of these improvements come from farmers themselves. We just need to give them the technical aspects³⁷"* [SFPS06IR03]. For example, the development of improvements on practices is based on the technical aspects they first learned when they began their organic operation. Specifically, as farmers continued with their practices, they build on that knowledge and as result as, they experiment. By acknowledging farmers' contributions by competent farmers, SFP/PO incentivises motivation in farmers for learning. In other words, the fact that competent farmers acknowledge the ideas of smallholder farmers acts as a motivation for farmers to continue sharing their learning. The quote illustrates the mutuality among smallholder farmers. In the narrative, the farmer stated how a competent farmer such as the area co-ordinator passed on his experience on how to carry out the practice of transplanting and pruning. Nonetheless, despite the value of the knowledge and experience of competent farmers, novice farmers also carry out their own experiments in their effort to improve their own practices. In this regard another farmer said:

"We were told to transplant three plants per meter. We tried something different; instead, we transplanted six plants per meter in zig-zag in double line. With that we realised we saved seeds, wood sticks. In 1/8 of the same space we planted more plants, and therefore we also saved water". [SFPS03PM]

These accounts from smallholder farmers reveal the teaching of organic practices mainly from the area co-ordinator. However, as their mastering of

³⁷ Technical aspects are all recommendations the area co-ordinator and other experienced farmers make in order to ensure proper production.

their practices went further, they decided to try different approaches to improve their practices. These improvements are acknowledged by competent farmers. As a result, learning is carried out by trial and error, and this knowledge is brokered by competent farmers and circulated to farmers who participate in the periphery in different locations. Therefore, new techniques are shared, contributing to the repertoire of SFP/PO and improving the operation.

On the other hand, with brokering farmers' contributions, the community is constantly built and strengthens constructive feedback to make possible for farmers to communicate and pass on their knowledge throughout the value chains and locations. Furthermore, farmers have taken the initiative to start experimenting with seeds. It was common to hear farmers say that they let crops flourish to make the first trials, make experiments with the first generation, and they grow fine. Therefore, trial and error exercises draw on their experiential knowledge which is anchored in their connectivity with the land and with other farmers.

Farmers' knowledge regarding biological control, along with their observations, played a key role in developing a new technique, a technical solution to tackle issues with pests. As one farmer explained:

“Bugs are very smart. There was one kind that every time we were going to use the neem it would hear us coming and let itself fall off the tomatoes. It would look as if it were dead, that's what they made us believe as we were spraying around. As we noticed this, we decided to use a sticky plastic, yellow preferable. We put those on the ground. Then we turned on a vacuum so that we made them believe we were spraying something. With that they fell off the tomatoes and got stuck on the sticky yellow cardboards”.

Yet another farmer said:

“There was a problem with bug we struggled with for many years. It destroyed our crops. I looked around the crops, took samples of the bug. I took my electronic loop. With that I saw which type of bug it was. The key thing here was I used the cheapest and simplest inputs. It was all about trying, being patient and the use of my tools. It took me around ten days to figure out [a solution]”.

These two examples make it clear farmers drew on their understanding of the practice of biological control to resolve problems. As their experience increases, they have drawn on that experience and applied it to guide their actions towards finding solutions to problems for themselves. In addition to figuring out a solution to a problem, they also happened to save money, opening the possibility of reducing the amount of debt when finishing their season.

Connectivity in the community of SFP/PO enables smallholder farmers to develop technical solutions. Brokering farmers’ experiences and perspectives are crucial for the development of innovative technical solutions. Brokering among smallholder farmers improves their organic farming practices, which are ultimately disseminated throughout the Community. In addition, this connectivity enables the passing of experiential knowledge exchange not only from competent farmers to novice farmers, but also for those that have intermediate level of participation in the community and those that are novice farmers.

8.4 Genetic Improvement programme

Wenger (2000) argues that Communities of Practice deepen their mutual commitment when they take responsibility for pushing their practice further and define their own learning projects. In the context of agricultural value chains, it has been discussed that upgrading means that suppliers can use knowledge for moving to higher value activities. These activities, such as modern farming techniques and access to finance may further improve their capabilities to meet strict quality, sanitary, and phytosanitary (SPS) standards required by global markets (Fernandez-Stark et al., 2011b, Navas-Alemán et al. 2012).

In the case of SFP/PO, innovation is important given that it is the result of the continuous learning effort among smallholder farmers. In other words, innovation is the result of the development of their Technological Capabilities. It enables them to contribute to the further improvement of practices, farming operations, and development of new products. It also shows the how the SFP/PO value chain has evolved throughout thirty-three years of operations. The nature of innovation of smallholder farmers in SFP/PO is incremental. When it comes to product innovation, farmers play a significant role for improving the characteristics of their produce, as opposed to technical solutions, where the interactions are more focused on improving their practices.

Main stream literature on upgrading in Global Value Chains emphasise the role of actors such the GB or Multinational Companies. The emphasis is based on the evidence that these two actors are essential for participating firms to take advantage in their participation and upgrade in their production skills.

However, my argument is that *product innovation* in SFP/PO, farmers take responsibility of their learning agenda by defining a structured programme, called the Crop Genetic Improvement Programme (CGIP) which originated in 2002. SFP/PO establishes an ongoing project anchored in critical mass of three actors a) full participating farmers, b) area co-ordinators and c) geneticists. These three actors assess the properties and characteristics of the crops, particularly cherry tomatoes. The objective of CGIP is to develop genetic cherry tomatoes varieties through genetic selection, (genetic material) that enhances the reputation of SFP/PO brand, for example in terms of e.g. colour, taste, and sizes.

The development of varieties considers the farmers' experience of the crop and field, as well as how easy it is to manage the growth of the variety. It is important to notice that innovation activities are more flexible, in the sense that they allow farmers to experiment based on trial and error, observing results with colours, textures, sizes and flavours, as it is observed with technical solutions. In carrying out these activities, farmers take responsibility of their learning agenda. As the Area co-ordinator, a competent farmer put it:

“it is like new year model car, you know there is always one new coming and we do the same here. For the wellbeing of smallholder farmers and stay competitive in the market, we constantly need to look for new products and we all need to work together for this type of development”. [SFPS01COOR3]

As critical mass, competent farmers in full participation, draw on a solid shared repertoire, and are driven by a deep sense of mutuality. The quote illustrates on the level of awareness on competition as well as the context in which smallholder farmers carry on with their farming operation. The quote also sheds light on the fact that full participation means taking the

responsibility to contribute with ideas for product development. As being the critical mass of the community, mutuality is evident when keeping an equilibrium between meeting the expectations of customer base as well as the needs of farmers.

For example, competent farmers draw on a solid shared repertoire by actively participating with their experiential knowledge in the form of comments and views because they are constantly interacting with the crop. As one farmer stated: *“the geneticists do the breeding based on the mendelian method taking into account the desirable characteristics reported by famers, e.g. they can grow it in all regions”* On the one hand, the solidity of the shared repertoire is based on the experiential knowledge that serves as repository of reliable information that helps make the correct adjustments to varieties under development, along with the knowledge of geneticists. One example of how these shared repertoires is used is discussed by the area co-ordinator of Northern Baja Peninsula:

“Look, we work the geneticists in the breeding’s. You take the plants with the characteristics you want. You take one that is the mother and another one that is father. You breed them and then you have the F1. With that F1 and what they say is that you have 50% chances that the plants will be like the mother and other like the father. You select the characteristics you look for from that 100%. Then, if you are interested in the characteristics of the mother, you take those that are more like the mother that is the F1. With the F2 you select them, but you have less chances, that is 25-75 % chances and so on and so forth you leave those plants that have the characteristics you want. This takes a long time, 3-4 years”. [SFPN01COOR]

The Area co-ordinator for the northern Baja region stated farmers provide their insight as to how the crops that are in trial behave given that crops vary throughout time. Farmers know their land, their soil, and in general, their conditions. They know exactly the temperatures and humidity they need. Solid shared repertoire draws on experiential knowledge to CGIP, one farmer said: *“we know that it is not the same conditions in the north than in the south (of Baja Peninsula). The latitude is an advantage in our zone (southern Baja). Having this orientation is an advantage, the sun rays we get influence the crops for sure, how they behave, the quality. These are the things that help us”* [SFPS04IT01]. Another farmer had similar views regarding CGIP: *“the genetic improvement programme is thought to face challenges, to know things we did not know before. Here what we use is our knowledge about the moon”* [SFPS04PMB]. In both quotes it is evident that competent farmers and their experience are relevant elements which strengthens the shared repertoire of SFP/PO given that knowledge on climatic conditions, local environment, and the experience of farmers contribute to the development of varieties.

For example, the shared repertoire is drawn to help identify the issues with a variety of cherry tomatoes under development. It serves to constantly assess the development of produce and make decisions to correct them. Farmers across Baja Peninsula reported about its imperfections on colour, developing white spots on the fruit’s skin and deficiencies water absorption due to cracks in the fruit as well. For example, an experience narrated by a competent farmer regarded the generic seeds for yellow-pear cherry tomatoes. It happened to be infected with fusarium, affecting the whole interaction with organisms in the soil. As part of the improvement programme, geneticists could develop a resilient variety in line with what farmers were reporting as desirable for them. One farmer put it this way:

"I can tell the about the yellow-pear and red-pear tomatoes. We used generic seeds. However, it had an issue with Fusarium [a fungal disease] in the soil and affected several farmers. Today we have yellow-pear tomatoes that were developed by our programme, and is resilient; farmers are happy with"
[SFPS01COOR1]

The Area co-ordinator of southern Baja said, *"it is not worth developing a variety that farmers don't like"*, it is about convincing farmers. If farmers can manage the crop after 3-4 years of trial, then we start a pre-commercial stage. However, if farmers are not fully convinced, they need to work on improving the crop. One farmer that was not convinced with the variety of cherry tomatoes said:

"For example, last year, we told (geneticists) them it [variety] was not working well. They came and took samples, because we were not reaching the goal of having the tomatoes with certain characteristics. What happened was that after some days tomatoes would develop some lines and would take the shape as if they were habanero peppers, affecting the farmers' yields. We told them that, so that we had to work on getting rid of such characteristics. Perhaps after so much breeding, it got like that". [SFPS05PM01]

In fact, the critical mass of farmers reports on how the crops behave year-round between both regions, north and south, while varieties are under development. While the southern coordination grows in the months of October to April, the northern coordination starts in May and ends in September. The Area co-ordinator of southern Baja Peninsula, along with geneticists, visit farmers to look for feedback. Once the programme has the variety with the desire characteristics, the second stage in the following season starts. The Area co-ordinator of northern Baja Peninsula said:

"We start growing the variety commercially. However, we need to protect the efforts of farmers and geneticists. If we

didn't protect it, then every customer could grow our tomatoes. What we do is what seed companies do, which is to make it hybrid. That is to make every seed mother. To do this, the seed with the desirable this breed it with another type of seed. And the seed that comes out of that is the one we grow. By doing this we guarantee that the sharing of genetic material is secure within farmers and ensure our customer or competitor won't be able to use our material that has taken us so much time to develop". [SFPN01COOR]

Farmers keep record of how crops behave, they analyse the period in which it is grown, the yield, and if it is working well for them. The different times in growing between the two regions enables the exchange of seeds and enhances the cleaning of the genetic material. Consequently, the CGIP speeds up the process of obtaining seeds with desirable characteristics, which is how they get the F1, F2 and F3 are produced between the regions. This is the stage in which the trial is carried out, where it is grown for non-commercial purpose.

SFP/PO's Crop Genetic Improvement Programme (CGIP) illustrates the mutual commitment among competent farmers given that farmers themselves take the lead and responsibility to further expand their learning. The interactions among farmers play a role for improving the characteristics of their produce, considering farmers' experiential knowledge on the crop and field as well as their appreciation of how easy it is for them to manage the growth of variety. The interactions take place between three actors a) smallholder farmers, b) area co-ordinators and c) geneticists, illustrate the critical mass and commitment for assessing the properties and characteristics of their products. For example, farmers experiential knowledge helped identify the issues with a variety of cherry tomatoes. Farmers constantly and actively participate with their experiential knowledge in the form of comments and views because they are constantly interacting with the crop. These type of

innovation activities are more flexible because they allow farmers to experiment, based on trial and error, with colours, textures, sizes, and flavours.

8.5 Summary

This chapter addressed the research question *how does the technological change occur in farmers' production capabilities?* The concept of *technological change* was used in this analysis for understanding the continuous learning of smallholder farmers in SFP/PO. Table 12 summarises the main argument of the chapter was that SFP/PO has an agenda for enhancing continuous learning, the concepts of Leadership, Connectivity and Brokering as well as Learning projects were used from the Communities of Practice to support the analysis on technological change and shed light on the agenda. As value chain, SFP/PO has integrated smallholder farmers in agricultural activities for producing organic produce. Leadership enables farmers to align to the understanding of the *enterprise* of SFP/PO. Farmers' leadership and their roles reflects the *mutual* responsibility for the operations of the entire value chain and contributing to the *repertoire* with knowledge, experience and tool. As a community, the smallholder farmers have been able to draw from these three elements that enable a continuous learning for developing skills for producing organic crops.

In addition, leadership has enabled farmers to certifications (organic, Fairtrade and food safety) as well as decision making. Yet, the continuous learning goes further to improve their practices with technical solutions, where connectivity among farmers and the brokering of their experiential knowledge has allowed farmers to complement the organic farming practices of every farmer and thus contribute to the operation of the value chain across the Baja Peninsula.

Interactions in the community of SFP/PO smallholder farmers enable incremental innovation. This allows farmers’ experiential knowledge and perspectives to be shared and considered for the development technical solutions as a type of innovation.

Table 12. SFP/PO Agenda for continuous learning

	<i>Technological change</i>	<i>Effects on organic farming practices</i>
Leadership	Motivating leadership roles throughout the SFP/PO	Continuation of development of production skills for novice farmers as well as providing the necessary knowledge on Organic, Fairtrade and Food Safety certifications.
Connectivity and Brokering	Technical solution	To improve the practices of farmers throughout the community and production activities in the Value Chain.
Learning project	Crop Improvement Genetic Programme	To develop new varieties of seeds for cherry tomatoes for desirable characteristics to enhance flavour, colour and sizes.

Source: Fieldwork Data 2015

Furthermore, the interactions among smallholder farmers improve their organic farming practices which are ultimately disseminated throughout the chain. In addition, these interactions enable the passing of experiential knowledge not only from competent farmers, but also for those that have intermediate level of participation in the community, and those that are novice farmers. Finally, SFP/PO focuses the efforts of its competent farmers on carrying out projects for developing varieties. This project furthers their knowledge and enables incremental innovation in products, bringing them together.

Chapter 9: Discussion and Conclusion

9.1 Introduction

The thesis examined how resource-poor smallholder farmers were integrated into Global Value Chains. In Chapter 2, I explained the way I selected the case of SFP/PO, which was based on a systematic approach. I made the cross references of two data bases, which contain information on organic and conventional productions. As a result, I created a random list of firms. From this list, I went out to the field and saw that many of the listed firms in fact produced by the same global buyer. I ended up with a value chain that was systematically chosen and rather than picking up winners.

The systematic approach allowed to select a significant Case Study with embedded cases. Consequently, the richness of this case provided enough scope to find smallholder farmers which a wide range of operations. From beginners to successful as well as cases of fail operations respectively. Although it is argued that research can benefit from successful cases, the richness of this case relies upon the fact that it has examples of failure. In this regard, smallholder farmers in this value chain share the same practices which provides examples of successful embedded cases as well as some failure cases and disagreements.

In chapter 3, I discussed how the major shortcoming of Global Value Chain literature is how the extensive research done is only seen through the lenses of production. The logic of Global Value Chains is to reduce the cost of allocating production, something considered a low value activity in developing

countries. Thus, high value activities such as branding, marketing and product development tend to remain in high income countries.

The special focus on production has significantly contributed to the understanding of factors which explain dispersion of production. However, research calls for a new direction in the understanding of global production, and specifically in agriculture, as it is the sector this study focuses on. Thus, the gap in knowledge I identified was the mechanisms which drive social purpose in Global Value Chains, where the production of a commodity is the means to integrate smallholder farmers and encourage learning for production capability development to take advantage of international markets. The San Francisco Produce/Peninsula Organics case study sheds light on the social purpose of a value chain and contributes to understanding the development of production capabilities in Global Value Chains. In this chapter, I bring all the empirical findings together, focusing on the social purpose of SFP/PO and how it achieves this purpose. The social purpose paves the way for a learning process for organic agricultural practices which translate into production capabilities. Firstly, I recap the research questions I set to find out empirical information to fill those gaps. Secondly, I discuss the key empirical findings for every research question and discuss the findings with literature and the contributions to theory of these findings. Third, I discuss the limitations faced in this study. I then present opportunities for future research and finally, I conclude the chapter.

9.2 Recap of Research Questions

As introduced and discussed in chapter 3, the objectives and research questions that lead the thesis are as follows:

The first objective is to examine the social purpose in San Francisco Produce/Peninsula Organics. The second objective is to understand the development of production capabilities in smallholder farmers in Global Value Chains. To comply with the second objective, I set the following research questions:

First Research Question: *How do smallholder farmers display competence in the community of farmers of San Francisco Produce/Peninsula Organics?*

Second Research Question: *How do smallholder farmers in SFP/PO learn the skills for production capabilities to become part of the Global Value Chain?*

Third Research Question: *How does the technological change occur in farmers' production capabilities?*

9.2.1 Discussing Social Purpose in SFP/PO

In this section, I present the key findings of chapter 5, and discuss them with literature on Global Value Chains. The findings of San Francisco Produce/Peninsula Organics as a case study illustrate the important aspects from the GVC literature standpoint. Main stream GVC literature focuses on input-output relationship, and the delivery of a commodity or service with added value, (Gereffi 1999; Gereffi & Korzeniewicz 1994; Gereffi 1994; Gereffi et al. 2005) It is argued that if commodity chain studies are to effectively grasp the complexities of contemporary agri-food globalisation, and its challenges for local social and economic development, they must not overlook rural livelihoods (Dolan & Tewari 2001; Challies 2008; Schumacher 2014) In this regard, SFP/PO Value Chain sheds light on social features rooted in the structure of the network of suppliers. SFP/PO has social purpose that drives

production of a commodity as the means to integrate smallholders, promote learning for production capability development and innovation.

In examining SFP/PO the findings indicate that as a Global Value Chain, it grows organic crops to supply markets during the offseason. Contrary to the focus on production around a single commodity in a global scale (Korzeniewicz & Martin 1994, Ernst & Kim 2002; Rabach & Mee Kim 1994; Lee & Cason 1994; Gereffi 1994; Goldfrank 1994, Harris, (1987), Gereffi, (1989) in Gereffi (1994) Ernst & Kim (2002), Henderson et al. (2002) and Coe et al. (2008)) SFP/PO achieves social purpose by setting interorganisational networks among co-operatives and single farmers for organic crop production, uses the mechanics of the market to address rural livelihoods of smallholder farmers, and satisfies the demands for fresh organic produce in the west coast of the United States. The value chains social purpose is clustered around three aspects, i) providing economic opportunities, ii) improving smallholder farmers' living conditions and iii) teaching organic farming practices.

Contrary to outsourced production in the periphery, where crop production is considered low value (Goldfrank, 1994) SFP/PO structures its network-based smallholder farmers grouped in co-operatives and single farmers. Through this network, SFP/PO provides high returns to farmers supported by three connecting strategies: sales strategy, production strategy and branding partnership. There is link between these strategies. The sales and production strategies link with the selection of crop varieties that will grow to respond as efficiently as possible to current and future demands. In addition, this link between the strategies helps to take advantage of the commercial window opportunities during autumn, winter and spring so that smallholder farmers get the highest prices possible and thus obtain high returns. Consequently,

benefitting from the highest prices possible, and the availability of the produce creates an appreciation of the brand “SFP/PO” due to the high quality of produce and the distinction of being organic certified produce.

Furthermore, to secure constant production throughout the year, SFP/PO has production in Mexico and the United States. Mechanisms of transparency, visibility and commitment allow farmers to have a business deal that ensures them constant participation in the supply of organic produce. In addition to these mechanism, SFP/PO provides technical support to all smallholder farmers located in Mexico with area co-ordinators.

This case study shows that social purpose can drive to satisfy an organic produce demand and tackle the inclusion of smallholder farmers with low capabilities. This is contrary to main stream literature, where lead firms tend to handle a small group of preferred, generally large-scale suppliers capable of meeting their stringent and costly requirements. (Young & Hobbs 2002; Boyd & Watts 1997; Lee et al. 2012). SFP/PO achieves social purpose to smallholder farmers by building up a network of smallholder suppliers that are marginalised and living in rural areas. This emphasises the argument of smallholder farmers being incapable or lacking the requisite knowledge and thus becoming marginalised (Maertens & Swinnen 2009; Palpacuer & Tozanli 2008). This value chain achieves social purpose by focusing on benefiting the farmers based on the characteristics of marginalisation and living in rural areas.

In addition, mainstream literature on Global Value Chains states that Global Buyers generate value by allocating production in the periphery and semi-periphery nations (developing countries) mainly characterised by low wages.

This conception is based on crop production being viewed as a labour intensive [low value] activity. Applying this to agriculture, lead firms located in developed countries carry out higher-value added activities like marketing, trading, and innovation, whereas crop production is outsourced to developing countries (Goldfrank 1994; Global Value Chains Initiative 2014).

SFP/PO achieves social purpose in their teaching of these three basic organic farming practices by making farmers understand and apply the organic principles in cultural labours³⁸ that increase production, quality, and nutrients in crops. Furthermore, the way SFP/PO achieves social purpose is through farmers obtaining the proper organic certifications. The social purpose in the organic certification comes from the shared effort and responsibility amongst co-ordinating firm and smallholders.

SFP/PO engages farmers with technical support to teach organic farming practices. The engagement with farmers is carried out through constant follow ups from the co-ordinating firm and its staff. The social purpose is embedded in engaging with farmers, in the close relationships between smallholder farmers and the technicians from the co-ordinating firm.

Finally, SFP/PO achieves social purpose by creating economic incentives with production of organic crops for smallholder farmers to stay in their communities and work their own land. Value Chain research has mainly focused on the nature of the relationships among various actors involved in the chain, stressing the role that Global Buyer and suppliers may play in supporting less developed country producers (Morrison et al. 2008) In

³⁸ Cultural labours are activities for maintenance that are carried out throughout the production time a crop.

developing countries, the GVC approach has shown how international linkages can play a crucial role in accessing technological knowledge and enhancing learning and innovation (Gereffi 1994; Gereffi 1999; Gereff et al. 2001; Morrison et al. 2008)

9.2.2 First Research Question: Discussion San Francisco Produce/Peninsula Organics as Community of Practice

In this section, I present the key findings of chapter 6, to shed light on the research question *How do farmers display competence in the community of farmers of San Francisco Produce/Peninsula Organics?* I further develop the discussion presented above where the nature of relationships among actors in the chain and emphasise their role in enhancing learning for production capability.

In terms of production capability development, Morrison et al (2008) argue that Technological Capability approach needs to draw attention to idiosyncratic elements regarding firms learning strategies. Additionally, when it comes to how production capability is developed in Global Value Chains, Gereffi et al (2005) point out that learning is difficult, time consuming and, in some cases, effectively impossible for some firms.

Gereffi (2005) primarily focuses Global Value Chains on the full range of activities firms and workers do to deliver a service or product from its conception to the final consumer. Lave and Wenger (1991) define Community of Practice as a set of relations among people, an activity, and the world. The San Francisco Produce/Peninsula organics case contextualises production of organic crop from its conception to the final consumer. Production capability development is part of its core competence. The contextualisation in this value chain is that it enhances relationships among smallholder farmers without

overlooking co-ordination between firms. Furthermore, it clusters identity around the activities for crop production. As opposed to workers, this value chain identity of farmers brings meaning to the full range of activities smallholder farmers do.

In this value chain, farmers with their practice deliver marketable organic crops to consumer in international markets. For production capability development farmer identity and their practice provides the idiosyncratic elements of their learning. Ingram (2008) highlights the importance of understanding the dominant assumptions, practices, rules, and the ability to tie new practices and value together. In this regard, farmers collectively turn their learning into an understanding of what organic agriculture represents and the practice for this value chain. Firstly, farmers define and share the understanding of the philosophy and the undertaking of organic principles of SFP/PO. Secondly, farmers establish norms and relationships that enable Mutual Engagement with others in the community, despite the geographic dispersion. And, thirdly, the views of farmers are reflected in a shared repertoire of communal resources such as knowledge, tools, stories, spaces for discussion which farmers have access to in this value chain.

Additionally, farmers display these competences according to their level of participation. In the periphery, farmers build up an identity of organic farmers by understanding the philosophy and organic principles of the value chain. In medium participation, farmers engage with one another in carrying out practices with the purpose of finding solutions to common problems which show reliability. In full participation, farmers device, change, and create tools, practices, and stories that become part of the resources that benefit the rest of the community. As Blackmore (2010) highlights Wenger's distinction between

participation and non-participation, in SFP/PO farmers participate and tie their identities and practices together, allowing a gradual adaptation to the context of organic agriculture and thus adoption of organic agricultural practices.

9.2.3 Second Research Question: Discussing Social learning in SFP/PO

In this section, I present the key findings of chapter 7, and continue with the discussion on how the nature of relationships among smallholder farmers plays a role in their learning, presenting a picture of how this learning takes place in a community, answering the research question *how do smallholder farmers in SFP/PO learn skills for production capabilities to become part of the Global Value Chain?*

In SFP/PO, learning occurs in a juxtaposition of two organisational dynamics. On the one hand, the dynamics of a Global Value Chain in which smallholder farmers are immersed and, on the other, that of a community of practice. In a value chain, Gereffi (2005) explains that governance mechanisms illustrate how coordination of production activities are carried out. Humphrey & Schmitz (2002) argue that within the sphere of governance of production, suppliers are active actors which can take advantage by learning how to produce with higher added value. In this regard, Giuliani et al (2005) explains that in Value Chains, suppliers can create external linkages which help them improve their processes and products. These linkages facilitate access to resources such as services, information, and skills. In SFP/PO, the Global Buyer, Area co-ordinators, and smallholder farmers are coordinated by

contracts to formalise coordination of production, transfer of knowledge and information, financial resources, and set responsibilities.

Wenger (1991) states Communities of Practice as a set of relations among people, an activity, and the world. However, the learning in smallholder farmers for production capabilities link these three actors. San Francisco Produce/Peninsula Organics shed light on informal collaboration based on idiosyncratic elements that lead to develop production capabilities. These collaborations allow farmers to take advantage of their governance mechanism. As Vandeplass (2015) states, that belonging to community of people who share the same goals, seems to favour the adoption of new technologies in value chains.

Cimoli & Porcile (2012) argue learning requires real time, has a critical tacit component, and it is a cumulative process that leads to a vicious or virtuous circle. In addition, Ekboir (2003) states that technologies are developed and disseminated by a network of agents. Additionally, Morrison et al (2008) argues that learning, and the actual efforts of suppliers in Global Value Chains are mainly hidden. However, In the SFP/PO case, farmers with their collaboration form a virtuous circle favours their learning to meet the product specifications, which requires time, nonetheless due to virtuous circle, farmers efforts are mainly evident, rather than hidden.

Oreszczyn et al (2010) state that farmers are very distinctive in their learning process because they draw on a wide network of people. Particularly, their learning process is articulated around social elements. In the SFP/PO case, farmers develop tacit knowledge on organic agriculture technology and enrich their agricultural experience through social learning. Farmers display

competence as they comply with the complexities of producing organic crops for the American market.

In this value chain, social learning, interactions between competent and novice farmers, allow the sharing of knowledge, its co-creation, and therefore, the learning of practices which carry meaning for farmers due to their link with smallholder farmers experience. Through social learning, farmers modify their skills towards organic agriculture. Understanding the nature of their communications, how long those communications lasted, and type of ties they developed with one another throughout the interactions, explains the experiential learning of SFP/PO's farmers to develop the skills for growing organic crops and certifying them.

For example, in knowledge sharing, the nature of communication is face-to-face interactions and co-location of experience with novice farmers. Face-to-face interactions enhances farmers learning and fulfils the perceived lack of experience in organic agriculture. In addition, experiential knowledge was shared through in situ examples that illustrated how to do organic farming activities in the context of farmers in their land, environment, and use of local inputs.

In face-to-face interaction, two social ties were identified that influence the learning of farmers. The first one is the trust on the source, and the second one is the negotiation made between competent and novice farmers to implement new activities. These social ties were important as novice farmers showed scepticism on how knowledgeable other competent farmers were. The time that took for new farmers to learn organic farming practices (soil fertilisation and biological control), was between one to three years, so during this time,

the communication between competent farmers and novice farmers was constant in those cases where they had established social ties to transfer knowledge.

9.2.4 Third Research Question: Discussing Technological Change/learning agenda in SFP/PO

In this section, I present the key findings of chapter 8, and continue with the final hints of the discussion on smallholder farmers learning, specifically how social learning enables continued technological change throughout the value chain. The research question in this section is *how does the technological change occur in farmers' production capabilities?*

Kishimoto, (2004); Schmitz & Knorringa, (2000); Schmitz, 2004 in Morrison et al. (2008) argue that innovation needs investment and efforts at the firm level. Firm's efforts in value chains need to be examined, particularly regarding social learning. In the case of SFP/PO, the learning of production capabilities involves a constant engagement among smallholder farmers in supporting and supervising cultural labours for organic crops production and certification activities. Farmers play a leading role in motivating other farmers throughout the value chain to continue to develop their skills. Leadership keeps up the understanding of the enterprise of SFP/PO and enhances the cooperation, mutual responsibility, and experience among smallholder farmers across their geographical locations and the experience of other farmers.

Wenger (2000) argues that Communities of Practice is about enabling a rich fabric of connectivity among people. Vera-Cruz et al (2008) argue that innovation in Mexican agriculture tends to follow the linear model which consequently overlooks, and in some cases neglects, smallholder farmers' technological needs. In this regard, due to a robust and wide fabric of

connectivity in which farmers interact, SFP/PO enables the flow of experiential knowledge. Through connectivity and brokering, experiential knowledge circulates throughout the value chain, which allows smallholder farmers to further develop their practice into technical solutions. These technical solutions are brokered throughout geographical locations which means these practices are disseminated in the value chain.

Regarding product innovation in SFP/PO, farmers take responsibility of their learning agenda. Wenger (2000) argues that Communities of Practice deepen their mutual commitment and their responsibility for pushing practice further and defining their learning projects. SFP/PO establishes an ongoing project anchored in critical mass of three actors a) full participating farmers, b) area co-ordinators and c) geneticists. McKenzie (2013) point out that a direct farmer-to-farmer knowledge exchange is expected, however the role of farmers groups is more surprising. Abebe et al (2013) explained that agricultural knowledge provided by organisations is a determinant of adopting improved varieties of potatoes in Ethiopian farmers. In SFP/PO competent farmers who are full participating farmers, area co-ordinators and geneticists form the critical mass, allowing constant assessment of the properties and characteristics of the crops, particularly cherry tomatoes, which allows product and process innovation.

9.3 Conclusion

9.3.1 Contributions to Knowledge

San Francisco Produce/Peninsula Organics case study sheds light on the three theoretical concepts. First, Global Value Chains. The significance of this Case Study is that as Global Value Chain, SFP/PO illustrates distinctive

circumstances between the smallholder farmers as producers and the Global Buyer. Concretely, SFP/PO has a broader governance structure. It is not governance in the narrow sense based on the asymmetric power relationship among suppliers and global buyer and the directionality in which instructions for production convey. It is a governance structure that enables the space for smallholder farmers as producer to influence SFP/PO and address their rural livelihood. These circumstances are linked to the social purpose which reshape the value proposition of process and production-distribution.

The case illustrates that social purpose appears to balance profitability or sustainability as a business with addressing rural livelihood. In this regard, the value chain achieves social purpose by taking advantage of global markets and the economic opportunities that derive from global markets. The value chains provides economic opportunities to smallholder farmers by integrating them into the production of organic produce for export. The social purpose of SFP/PO permeates smallholder farmers' philosophy and understanding of the process for organic production. As a result, it addresses the rural livelihoods, inclusion of smallholder farmers and promotes the learning for production capabilities.

Secondly, the study gathers empirical evidence on the learning process, an analytical category of Technological Capability development. Although there are studies that incorporate Global Value Chains and Technological Capabilities, the circumstances of San Francisco Produce/Peninsula Organics sheds on social learning as a means to learn production skills, where knowledge is co-created. What social learning in this case study sheds light on, is that idiosyncratic elements emerge from farmers. Smallholder farmers as producers influence SFP/PO by contributing with their experiential

knowledge to the improvement of current practices and development new practices in organic agriculture. In this sense, farmers' experiential knowledge is harnessed by SFP/PO so that the value chain enriches and broadens its repertoire.

The relationship between Global Buyer and producers in this case is grounded on the idea of a community of farmers. This circumstance means SFP/PO values and takes indigenous knowledge and harness it to innovation. This relationship situates their activity as practice, adding meaning to what they do. Farmers co-create knowledge based on farmer to farmer social interactions. These social interactions play an important role in farmers' learning for production capabilities. In addition to interactions, social ties also play a role. Social ties enables the creation trust, reinforce the interactions that already exist with farmers and nurture the co-creation of knowledge.

The boundaries of San Francisco Produce/Peninsula Organics as Global Value Chain as well as the Community of farmers are both porous. In this social learning farmers are brought into the context, allowing connection of their identity with what they need to adopt in regards to organic production. San Francisco Produce/Peninsula Organics provides an ongoing training and updates to farmers in their gradual development of production capabilities, shedding light on long commitment to farmers.

Another circumstance that indicate the influence of farmers in SFP/PO is that farmers themselves define an organic farmer in the value chain should be. As more opportunities arise from the global markets, more smallholder farmers are integrated into the value chain. In this integration, smallholder farmers are gradually brought into the community by displaying competence. These

circumstances reshape the governance structure that prevails in this value chain. Particularly, this broadened governance structure in SFP/PO allows smallholder farmers as producers to leverage their capabilities and demonstrate their organic competences and thus demonstrate their social inclusiveness.

This case sheds light on addressing rural livelihood. It is possible. In light of other research, literature in value chains claims that it is possible to structure value chains in a different way to address other elements such as social elements, for example the conditions of workers, development of production capabilities and innovation, e.g. production innovation. It is possible, within the boundaries of this case, empirically speaking they structure around that.

Although empirically speaking, the Social Purpose of SFP/PO elucidates that the structure of the network can be designed to enhance connections, interactions and production itself of a single commodity to address the rural livelihood. Markets change, new products are demanded, more competition arises, which could alter the particular circumstances that enable the broader governance of the value chain.

As far as the community of farmers is concerned, smallholder farmers unanimously have expressed their concerns about the future of San Francisco Produce/Peninsula Organics. The founders of the value chain will soon retire and there is uncertainty among farmers as to where exactly the value chain will go once the founders retire. Farmers are unclear who will lead the value chain and what approach the new leader will take. While some farmers believe that approach might focus on tackling competitive markets by stressing efficiency so that farmers less productive and less capable will be dismissed,

other farmers place their hopes in the new generations (their children) who will take over and perform better in the future.

There also appears to be winds of hope given that there are people within the value chain that seem to fit the profile of founders so that social purpose will remain. Empirically speaking what the case shows is that the interactions between farmers and global buyer place the idiosyncratic elements of farmers so that the technology is internalised by farmers despite how time consuming and costly this process can be. Farmers are aware of the uncertainties and future in their participation showing how critical it is to them leadership in the value chain and its social purpose.

Although there is extensive research on Global Value Chains, to my knowledge, San Francisco Produce/Peninsula Organics is one of the few studies that illustrates a changing ethos in Global Value Chains. Due to its social purpose, the logic of its operation particularly changes the ethos of farmers. This logic distinguishes San Francisco Produce/Peninsula Organic as value chain. This only constrains providing value to the produce but also that the intermediaries are trading this advantage and the producer can trade demonstrable performance of organic to the intermediaries and then into the final consumer.

9.3.2 Limitations of the research

The three main limitations of my PhD project. First, weaknesses in mine conducting the research, the time and financial resources. The objectives of the PhD project were set to understand the social purpose in San Francisco Produce/Peninsula Organics, and to understand the development of

production capabilities in Global Value chains. I carried out a large number of interviews with smallholder farmers, so that their accounts could be consistent throughout at the majority of geographical locations. However, more interviews could have been carried out with farmers in the north part of Baja Peninsula. As I explained in chapter 2, given that in that area there is presence of check points of drug cartels, I had to dismiss this region.

Being a sponsored student from the Mexican Council of Science and Technology (CONACYT), the Council provided a monthly stipend which covers living expenses, but does not provide a budget to carry out fieldwork. Therefore, the expenses of the fieldwork were financed out of the stipend. These financial restrictions had to be considered when I made decisions on people to interview and farms to visit in southern Baja Peninsula. In terms of time, CONACYT establishes a time frame in which the study should be carried out. Therefore, this time frame had to be considered for completing the fieldwork, transcription of interviews, the analysis and the writing up of the thesis.

Another limitation was the access to financial information that could shed light on how much income farmers have made on yearly basis, and compared that with their previous income before joining San Francisco Produce/Peninsula Organics. This is due to consideration of this data being too sensitive to share. Despite these limitations, the accounts of farmers and their value as empirical evidence have sufficient strength as arguments to stand on their own.

9.3.3 Future Research

Based on the analysis of San Francisco Produce/Peninsula Organics, the purpose learning such as cooperative idea and the commitment is worth further analysing for more in-depth understanding of these elements as to how they shape social purpose in the value in GVC. On the one hand, the cooperative idea there is among competent farmers in keeping on supporting novice farmers in their learning of organic agriculture practices. Additionally, the fact that some farming operations are more successful than others, both novice farmers and competent farmers do not pay too much attention in how much money or time they spend in teaching, but keeping up on the commitment for those farmers to become competent and therefore improve the performance of their operation, and with that, improve their living conditions.

In addition, it is worth further examining the embedded cooperative idea among farmers to expand the understanding that enables the development and spread of new knowledge and practices that translate into innovations that ultimately favour all smallholders. Another consideration for future research is how San Francisco Produce/Peninsula Organics despite its failures or discontent among smallholder farmers nevertheless, those novice farmers who feel neglected are still committed to learning and contribute in the same cooperative effort.

San Francisco Produce/Peninsula Organics case study was not exhausted. As value chain, it is an interesting exemplar due to logic of operation because it does not operate under reduction of costs which is worth further researching. One avenue of further research is examining about how the founders of

SFP/PO conceived the idea of the value chain. Their verbal accounts can provide more empirical evidence of their motivations behind this project, their role in designing the network of smallholder farmers and their accounts in teaching organic agriculture. Interviews with the founders of San Francisco Produce are of enormous empirical value, given their insightful and valuable accounts of their experience in carrying out production activities, working with smallholder farmers and pursuing innovation. Also, interviews from the farmers in San Francisco California are of great empirical value to shed light on the practices that are carried out in both countries, Mexico and U.S.A.

Furthermore, smallholder farmers provided accounts that indicate the founders are now working with smallholder farmers in rural communities in Tanzania. This is a second avenue is worth further researching. The founders are integrating new groups of farmers, which indicate the replication of the social purpose. In particular the teaching of organic agricultural practices. This could further shed light on how social purpose and teaching organic agriculture still goes on and is spread in other geographic locations such as Africa.

Finally, as SFP/PO holds annual meetings with all farmers, they keep records (videos and minutes) of this meeting which in itself is a rich source of data that potentially sheds light on the designing and carrying out of production and sales strategies as well as other aspects of the social learning that goes on in this value chain.

10. Bibliography

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11. Appendix

Appendix 1 List of firms to be interviewed

Item	Location	Name of Company	City	Products	Certifications	11. Website
1	B.C.S.	Productores Orgánicos del Cabo	Los Cabos	Organic Tomatoe, Basil, Panar Herbs	Primuslabs, USDA Organic, C-TPAT, Senasica Packhouse	www.delcabo.com
2	B.C.S.	Productos Orgánicos Tepentu, S. de S. de R.I. de C.V.	Comondú	Organic Tomatoe, cucumber, Basil	Senasica Field	
3	B.C.S.	Productores Orgánicos de Muélegé, S.P.R. de R.I. de C.V.	Muilegé	Organic Garlic, Peas and Pepper	Senasica Field	
4	B.C.S.	La Odisea, S.P.R. de R.L.	Zaragoza	Tomatoe and pepper	Senasica Field and Packhouse	
5	B.C.S.	WPH Internacional, S.A. de C.V.	Muilegé	Tomatoe	Senasica Field and Packhouse	
6	B.C.S.	Agrícola Baja, S.A. de C.V.	Muilegé	Tomatoe and cucumber	Senasica Field and Packhouse	
7	B.C.S.	Agroexportadora del Noroeste, S.A. de C.V.	La Paz	Tomatoe and cucumber	Senasica Field and Packhouse	
8	B.C.S.	Hortalizas Orgánicas Espinoza Hermanos, S.P.R. de R.I. de C.V.	Insurgentes	Organic Basil, Tomatoe, members and	Senasica Field and Packhouse	

Item	Location	Name of Company	City	Products	Certifications	Website
9	Sonora	Videxport, S.A. de C.V.	Hermosillo	Watermelon and grapes	Primuslabs, GlobalGAP, C-TPAT, Mexico Supreme Quality,	http://www.videxport.com.mx/cont
10	Sonora	Agroindustrial Sonora, S.A. de C.V.	Hermosillo	Grapes	Primuslabs, EuropeGAP, HACCP certified, FDA, TESCO	http://www.agrois.com/
11	Sonora	Agropecuaria Malichita, S.A. de C.V.	Guaymas	Melon, Cucumber and pepper	Primuslabs, Global Security Verification, HACCP, C-TPAT,	http://www.malicita.com/
12	Sonora	Viñedos Alta, S.A. de C.V.	Hermosillo	Melon, watermelon, pepper, tomatoe and	Primuslabs, GlobalGAP, Mexico GAP, C-TPAT, Mexico Supreme	http://www.grupoalta.com/en
13	Sonora	Agrícola Bay Hermanos, S.A. de C.V.	Hermosillo	Squash, watermelon and melon	Primuslabs, USDA Organic, GlobalGAP, Global Food	www.agricolabay.com
14	Sonora	Agrícola Alta Pozo Manuel, S.A. de C.V.	Hermosillo	Grapes	Senasica Field	
15	Sonora	Agrícola Joly, S.P.R. de R.L.	Caborca	Grapes	Senasica Field	
16	Sonora	AG Mart Produce, S. de R.L. de C.V.	Guaymas	Tomatoe, grapes and melon	Senasica Field and Packhouse	
17	Sonora	Agrícola Lomas Chileras, S.A. de C.V.	Guaymas	Melon, green Tomatoe, tomatoe, pepper,	Senasica Field and Packhouse	

Appendix 2 Leaflet with information for firms to be interviewed



THE UNIVERSITY *of* EDINBURGH

Information leaflet for research Project

Global Value Chains (GVC) and Social Learning. Developing Producer Capabilities in Smallholder Farmers. The case of San Francisco Produce/Peninsula Organics (SFP/PO)

Let me introduce myself:

My name is Abel Villa; I am currently conducting my PhD in Science, Technology and Innovation Studies (STIS) at the University of Edinburgh, in the United Kingdom. My research interest and topic focus on Technological Capabilities in the agricultural sector. Agriculture is a key employers and, in many countries, one of the most important economic activities for development. Little research is conducted in regards to its competitiveness and innovation. Therefore I hereby invite you to participate in this research project. Your cooperation will help in the understanding of such processes.

A. Purpose of this project:

The main objective of this research project is to provide an understanding about the competitive capabilities in the agricultural sector; how this process takes place, the actors involved and therefore the outcomes. Also, as part of the project, is to offer a diagnosis as to what the sector needs in terms of innovation and competitiveness and what other alternatives to enhance the performance of each actor in the innovation system there are.

B. Why I participate in this research project:

As part of the National Governments' strategies, I have been granted with a scholarship to conduct research in this topic. The government needs to understand what it takes for agriculture to modernize and become competitive in national and international levels. Your expertise in the field and position in this company are greatly appreciated and is an important component in conducting successfully this research project. The information intended to be gathered, if you wish to participate, will be strictly confidential and disclosed in plots and graphics, so there will be no links with your personal data or anything related to yourself.

C. How will the information I provide be used and stored:

The information provided by your participation will be discussed as part of the assignment (above mentioned) with no relation to your personal data and right after the assessment has been made, it will be destroyed.

D. Confidentiality

Detailed information in the interviews or any personal data will be asked, nevertheless not mandatory to be provided. In the case of being provided, it will be just for the purpose of knowing the name of the respondent, name of the company and your position in it. As for the rest of the questions, those are only

intended to gather information data analysis. Personal information will not be presented, discussed nor related to any part of the project.

Participant's consent form

I hereby agree with the following statement:

1. By participating in this research project, I do it willingly and with no pressure of any kind nor any financial reward, but with the only desire of participating in this research project.
2. I have been informed of the project and its objective by reading the information leaflet.
3. I have been given the opportunity to ask questions about the project and my participation.
4. The procedures regarding confidentiality have been clearly explained (e.g. use of names, pseudonyms, anonymisation of data, etc.) to me.
5. I have been informed that I can or cannot authorized the use of my name and information about the company (such as name of the company) and that it will be stored.
6. Select only **one** of the following:
 - I would like my name, name of the company to be used and understand what I have said or written as part of this study will be used in reports, publications and other research outputs so that anything I have contributed to this project can be recognized.
 - I do not authorize the use of my name, nor the name of the company to be used in this project.

By signing this form, I consent to take part in this research project "**Global Value Chains (GVC) and Social Learning. Developing Producer Capabilities in Smallholder Farmers. The case of San Francisco Produce/Peninsula Organics (SFP/PO)**" and to be interviewed.

I _____ (full name of the participant) _____ agree on participating in this research project

Signature of the participant _____

Place and Date _____

Abel Osvaldo Villa Rodríguez signature _____ date _____