

From dialogue to actions:

# How multi-stakeholder partnerships for sustainability can reshape agri-food value chains

*The case of the Barilla Sustainable Farming Initiative*

MSc thesis by Anne Rappoldt

May 2016

Title	From dialogue to actions: How multi-stakeholder partnerships for sustainability can reshape agri-food value chains. <i>The case of the Barilla Sustainable Farming Initiative.</i>
Author	Anne Rappoldt
Student no.	910728680030
University	Wageningen University
Study program	Management, Economics and Consumer Studies
Specialization	Management
Chair Group	Management Studies Group (MST)
Supervisor	Stefano Pascucci
Co-readers	Domenico Dentoni & Liesbeth Dries
Date	12 May 2016

## ABSTRACT

Global challenges put pressure on the earth's finite resources and call for an increase in sustainable food production. There is a rise of multi-stakeholder partnerships (MSPs) in agri-businesses with a focus on sustainability practises, where governments, businesses, civil society and science are working together. In this research the private actor is seen as institutional entrepreneur, facilitating the design of a MSP and shaping or changing the institutional environment. The objective of this research is to understand the role of partnership creation and actor engagement in the adoption and diffusion of sustainable innovations – promoted and facilitated by private actors - in food value chains. This qualitative research uses an action research method.

First, a literature study is done on attributes and dimensions of governance structures of MSPs and the design process of MSPs facilitated by institutional entrepreneurs. A theoretical framework is formed that is used as a foundation for the empirical analysis. The Barilla Sustainable Farming Initiative is used as a case in this research, and involves a sustainable agricultural practices based on horizontal agreements between Barilla and three suppliers. The initiative aims to integrate and align the different supply chains into a crop rotation system and to engage farmers in adoption of the rotation system by offering a proper contract. Empirical data collection occurs through interviews and participant observation during a multi-stakeholder meeting.

Governance structures are established in a later phase of MSP design than the first initiating phase, but rationales evolve throughout the process. Moreover, it is found that a two level approach is needed to adopt the rotation system because it is not possible to design a single standard contract that can include all relevant elements. It can also be argued that the design process is not a fixed process but it mentions key steps that should not be overlooked. In a real design exercise during a multi-stakeholder meeting, two pilot rotations are negotiated for the Barilla Sustainable Farming Initiative consistent with the two level approach. Recommendations are provided about the next steps in the design process, and the implications for the choice of governance structures.

**Key words:** Multi-stakeholder partnership, MSP design, sustainable innovations, agri-food value chains, Barilla Sustainable Farming Initiative

## PREFACE

This report is the result of my thesis that is required to obtain a Master of Science (MSc) degree for the study Management, Economics, and Consumer Studies, with a specialization in Management Studies, at Wageningen University and Research Centre.

I would like to take this opportunity to express my gratitude to several persons that have supported me in this research. First, I would like to thank Stefano Pascucci, my supervisor, for his guidance and support during the research. The brainstorm sessions and discussions were always inspiring, challenging, and built my confidence in this research report. I would also like to thank Domenico Dentoni and Liesbeth Dries, the co-readers of this report, for their interest and for providing feedback that helped to improve the quality of this research. Third, I would like to thank Cesare Ronchi, Michelle Zerbini, Luca Ruini, Leonarde Mirone and Paloma Sancho Garcia, the representatives from Barilla, for their support in organizing the multi-stakeholder meeting in Parma, and their hospitality during my stay there. I would also like to thank Emanuelle Blasi and Barbara Pancino, the researchers from Tuscia University of Viterbo for the input and collaboration during my visit in Parma. Lastly, I would like to thank the representatives Casalasco, Co.Pro.B., and Cereal Docks for their openness and contribution in the empirical data analysis.

Wageningen

May 2016

Anne Rappoldt

# TABLE OF CONTENTS

1.	Introduction.....	1
1.1	Research background.....	1
1.2	Conceptual research design.....	3
1.3	Technical research design.....	5
1.4	Report outline .....	7
2.	Theoretical background.....	8
2.1	Public private partnerships.....	8
2.2	Governance of MSPs .....	9
2.3	Three dimensions of governance .....	19
2.4	Rationales for the governance dimensions.....	22
2.5	Institutional entrepreneurship .....	26
2.6	Partnership design .....	28
2.7	Theoretical framework.....	31
3.	Case description: The Sustainable Farming Initiative.....	35
4.	Methodology.....	38
4.1	Research strategy .....	38
4.2	Data collection.....	39
4.3	Interview design .....	40
4.4	Design exercise.....	41
4.5	Methods of analysis .....	42
4.6	Quality assessment of the methodology .....	42
5.	Results.....	43
5.1	Interview results.....	43
5.2	Designing exercise.....	48
5.3	Continuing the MSP design process .....	51
5.4	Implications for governance structures .....	53

6. Discussion.....	56
6.1 Limitations.....	56
6.2 Recommendations for further research.....	57
7. Conclusion .....	59
7.1 First general research question .....	59
7.2 Second general research question.....	61
References.....	64
Appendix A: Interview protocol.....	70
Appendix B: Interview transcripts.....	74
Transcript interview 1 .....	74
Transcript interview 2 .....	80
Transcript interview 3 .....	85
Transcript interview 4 .....	93

## LIST OF TABLES

Table 1. Source categories and related research objects .....	6
Table 2. Dynamics in governance .....	12
Table 3. Overview of governance frameworks and continua .....	14
Table 4. The level of integration .....	20
Table 5. The level of public involvement. ....	21
Table 6. The level of administrative support .....	21
Table 7. Partnership rationales for the level of integration .....	22
Table 8. Partnership rationales for the level of public involvement .....	23
Table 9. Partnership rationales for the level of administrative support .....	26
Table 10. Individual and collective benefits .....	36
Table 11. Interviewees .....	39
Table 12. Attendants of the multi-stakeholder meeting .....	40
Table 13. The interview design .....	41

## LIST OF FIGURES

Figure 1. Research framework .....	5
Figure 2. Transaction costs model .....	24
Figure 3. The comparative costs of governance .....	25
Figure 4. Four levels of social analysis .....	28
Figure 5. The process model of MSP design .....	29
Figure 6. The theoretical framework .....	34
Figure 7. Regions of the Sustainable Farming Initiative .....	36
Figure 8. The supply network of Barilla .....	37
Figure 9. The two pilot rotations .....	49

# 1. INTRODUCTION

Chapter 1 of this research will describe the context and background information of the research. Section 1.2 will discuss the conceptual research design, which introduces the research objective, the research questions, and the research framework. Then, section 1.3 will discuss the technical research design, which describes the materials and strategy used in this research. Lastly, section 1.4 will describe the outline of this paper.

## 1.1 RESEARCH BACKGROUND

There is a rise of multi-stakeholder partnerships (MSPs) in agri-businesses. In 2011, twenty-two out of fifty - and even nine out of the top ten - of the world's largest multi-national corporations (MNCs) in the food and beverage sector participated in at least one MSP for sustainability (Dentoni & Peterson, 2011). A key reason for organizations to join a MSP is the co-creation or access to new resources and capabilities, which increases already in early stages of the MSP experience (Dentoni et al., 2015). The largest MNCs that own a portfolio of different brands operating in various food sub-sectors (such as Nestle, PepsiCo, Kraft Foods, and Unilever) participate in a large number of MSPs in multiple sectors, and focus on both environmental and social sustainability. The relatively smaller MNCs (such as Bunge, Ferrero, and Cadbury) participate generally in MSPs within a specific sector, and focus on either environmental or social sustainability (Dentoni & Peterson, 2011). Dentoni and Bitzer (2015) list 41 multi-stakeholder initiatives in the food and agriculture sector that emerged since the early 2000s, such as the Roundtable on Sustainable Palm Oil (RSPO), the Sustainability Consortium, and Alliance for a Green Revolution in Africa (AGRA). Moreover, the FAO introduced The Global Agenda for Sustainable Livestock for sustainable development of the livestock sector, bringing together representatives from the public and private sector, producers, civil society and non-governmental organizations, research and academia, and inter-governmental organisations (Sustainable Livestock, 2013). Dentoni et al. (2015) argue that the agri-food sector is particularly relevant because tensions between land, natural resources, feed, food, and energy cause complex and urgent sustainability issues.

Complex and urgent sustainability issues are caused by interaction of a number of variables that affect efficiency and sustainability of local agriculture. First, there is a decrease in the amount arable land available as a result of urbanization, salinization, desertification, and environmental degradation (Ronald, 2011). Other variables are climate change (Kesavan, 2015), eating habits, (BCFN, 2011), increases in food prices and fuel costs, pesticide pollution, pest adaptation, and resistance (Lichtfouse et al., 2009). Moreover, the agricultural activities of the past fifty years have been focussed on maximizing productivity by adoption of new technologies and modernization of production techniques, such as high-yielding plant varieties, practise of monoculture, mechanization, and use of agrochemicals (BCFN, 2011; Bernstein, 2014; Stewart et al., 2013). These activities resulted in a period of high productivity and low food prices, but also in intensive and often irreversible exploitation of the natural resources as an effect of soil erosion, decreased fertility, water contamination, deforestation, and loss of biodiversity (BCFN, 2011; Kesavan, 2015; Lichtfouse et al., 2009).

The global demand for agricultural products has increased rapidly through the past decade and will continue to increase mainly because of changes in developing countries, such as population growth, rising per capita incomes, and urbanisation (Godfray et al., 2010; OECD, 2015; Thornton, 2010). Besides an increase in the total demand for food, also rising per capita incomes lead to



diversification of diets with an increased demand for processed food, meat, dairy and fish – again increasing pressures on the global food system (Godfray et al., 2010; Thornton, 2010). However, food consumption in developed countries is constant as a result of stable per capita consumption and limited population growth (OECD, 2015).

As a response to global trends and challenges that put an immense pressure on the resources of the earth, there is an increase in awareness for the urgency of sustainable agriculture and the environmental impact of food (Wezel, 2014). Several UN conferences have been organized such as UN Conference on Environment and Development in 1992 in Rio de Janeiro; World Summit on Sustainable Development in 2002 in Johannesburg, and RIO+20 on Sustainable Development in June 2012 in Rio de Janeiro (Kesavan, 2015). The Declaration of the World Summit on Food Security in 2009, organized by the FAO, calls urgently for “*new investment to increase sustainable agricultural production and productivity*”, and for the “*sustainable practices, improved resource use, protection of the environment, conservation of the natural resource base and enhanced use of ecosystem services*” (Burlingame and Dernini, 2012, p. 14). Focussing on global food security, the efforts of the FAO are most aligned with the Millennium Development Goals (MDG) 1, the elimination of hunger and poverty, and MDG 7, ensuring environmental sustainability (United Nations, 2015). However, hunger obstructs development towards all eight MDGs so the elimination of hunger is key to achieve them all (FAO, 2010). To summarize, an unresolved problem of access to food calls for innovation in agri-food chains to be able to deal with these complex challenges.

In addition, there is an increase in awareness of sustainable diets. Sustainability of diets is a complex debate and depends on various elements. Padilla et al. (2012) explain that a sustainable food system is formed by environmental, nutritious, economic and socio-economic criteria that are interrelated throughout the whole supply chain from agriculture to consumer. Stewart et al. (2013) also argue that there is a common interest between challenges in food supply and healthy diets, that calls for cooperation between nutrition and agriculture policy to align the goals of healthy and sustainable food production. Aiking and de Boer (2004) argue that just a few corporations are in charge of the food production system and that multinationals should hand over some form of control to stimulate democratic multi-level governance to make food production more sustainable. Moreover, multinationals are in business to make profits, so they will only participate in sustainability practices if there is a ‘win-win’ situation – meaning that there is also a business advantage in addition to the social and environmental advantages (Rondinelli & Berry, 2000).

It takes partnership to tackle the challenges of the modern world. There is not only an increase in awareness of sustainable agricultural policy, businesses also respond to an increasing interest of consumers in sustainability and the information about where food comes from and how it is produced (Kolk et al., 2008; Nierenberg, 2012). Dentoni and Bitzer (2015) analysed the role of academics in and around sustainability initiatives in the global food and agriculture system. In other words, governments, businesses, civil society and science are all working on the same issues and they start to recognize the need to work together in MSPs to tackle shared issues in sustainable development (Backstrand, 2006; Brouwer et al., 2015). The term partnership refers to actors that mobilise to take action together (Brouwer et al., 2015), and can be seen as an “advanced” form of collaboration (Pretty et al., 1995; cited in Prager, 2010). In a partnership, participants are involved in processes of communication, decision-making, and common action (Prager, 2010). In an MSP the stakeholders share a common ambition or issue, but at the same

time they have also different ‘stakes’ or interests (Brouwer et al., 2015; Prager, 2010). MSPs are a potential solution for failure of individual actors (Kolk et al., 2008), or for deficits in governance and implementation of global environmental politics for sustainable development (Haas, 2004; cited in Backstrand, 2006). Moreover, MSPs can be seen as a reaction to complexity of the wicked problems (Dentoni et al., 2015), and they can bridge multilateral norms and local action through the collaboration of diverse stakeholders (Backstrand, 2006)

Existing literature describes how MSPs aim to tackle the problems around sustainability. However, there is a gap in the literature about MSPs initiated by private actors in order to improve strategic value chain issues. The concept of institutional entrepreneurship explains that individual actors have the agency to change the institutional environment (Pacheco et al., 2010). This research focusses on the design process of MSPs, targeting adoption and diffusion of sustainable innovations in food value chains, facilitated by private actors as institutional entrepreneurs. Changes in the institutional environment entail new modes of governance that are established during the design process of MSPs.

In this research, the perspectives of strategic management and new institutional economics are combined. The Barilla Sustainable Farming Initiative is an initiative from the Barilla Group and involves a horizontal agreement between Barilla and three suppliers to integrate the value chains by means of a crop rotation system. This initiative will be used as a case in this research. The aim is to design a MSP that engages farmers to participate in crop rotation system via contracts that ensure outlet to all crops in rotation.

## 1.2 CONCEPTUAL RESEARCH DESIGN

### 1.2.1 RESEARCH OBJECTIVE

This research is part of a larger project with the objective to understand the role of network creation and actor engagement adoption and diffusion of sustainable innovations – promoted and facilitated by private actors - in food value chains (Pancino et al., 2015). Translated to the case of Barilla, it means to understand the role of MSPs for engagement of farmers through contracting in the adoption and diffusion of a crop rotation system.

The overall project can be divided into the following three phases:

- (1) Understand the process of designing a MSP, including shaping of the governance structure.
- (2) Design and test pilot (horizontal) contracts with farmers
- (3) Design a final contract with all legal terms delineated and implement it.

This research will target the first two sub-phases of the overall project objective. First, this research aims to get an understanding of the process of designing a MSP operating in agri-food chains in Italy. Included in this process is how rationales shape governance structures of a MSP. Therefore, the objective of this research is *to understand the process of designing a multi-stakeholder partnership in the adoption of sustainable innovations in food value chains, promoted and facilitated by private actors*. Output is a list of governance dimensions and attributes with related rationales, and action steps for a design process. The second sub-phase takes the findings of the first phase into action and entails a real design exercise with stakeholders of the MSP.

### 1.2.2 RESEARCH QUESTIONS

There are two general research questions in order to reach the objective. The first general research question is related to the first phase of the objective explained in the previous section: (1) Understand the process of designing a MSP, including shaping of the governance structure.

- (1) How do rationales influence the attributes and dimensions of governance structures when designing a MSP in the adoption of sustainable innovations in food value chains?

The first general research question is divided into the following sub-questions:

- (1.1) What are attributes and dimensions characterizing MSP governance structures?
- (1.2) What are rationales that influence the attributes and dimensions of governance structures when designing a MSP?
- (1.3) How do rationales influence the attributes and dimensions of governance structures in case of the Barilla Sustainable Farming Initiative?

Sub-questions (1.1) and (1.2) are answered by a literature study, and sub-question (1.3) is answered by an empirical study.

The second general research question is related to the first and second phase of the objective explained in the previous section: (1) Understand the process to design the MSP, and (2) design and test pilot (horizontal) contracts with farmers.

- (2) What are the steps to design a MSP in the adoption of sustainable innovations in food value chains, promoted and facilitated by private actors?

The second general research question is divided into the following two sub-questions:

- (2.1) What is the process of designing a MSP?
- (2.2) What are the steps for the Barilla Sustainable Farming Initiative in designing the MSP?

Sub-question (2.1) is answered by a literature study, and sub-question (2.2) is answered by an empirical study.

### 1.2.3 RESEARCH FRAMEWORK

The research framework is a “*schematic representation of the research objective and includes the appropriate steps that need to be taken in order to achieve it*” (Verschuren & Dooreward, 2010, p. 65). Figure 1 shows the research framework and specifies the activities performed in this research to answer the research questions.

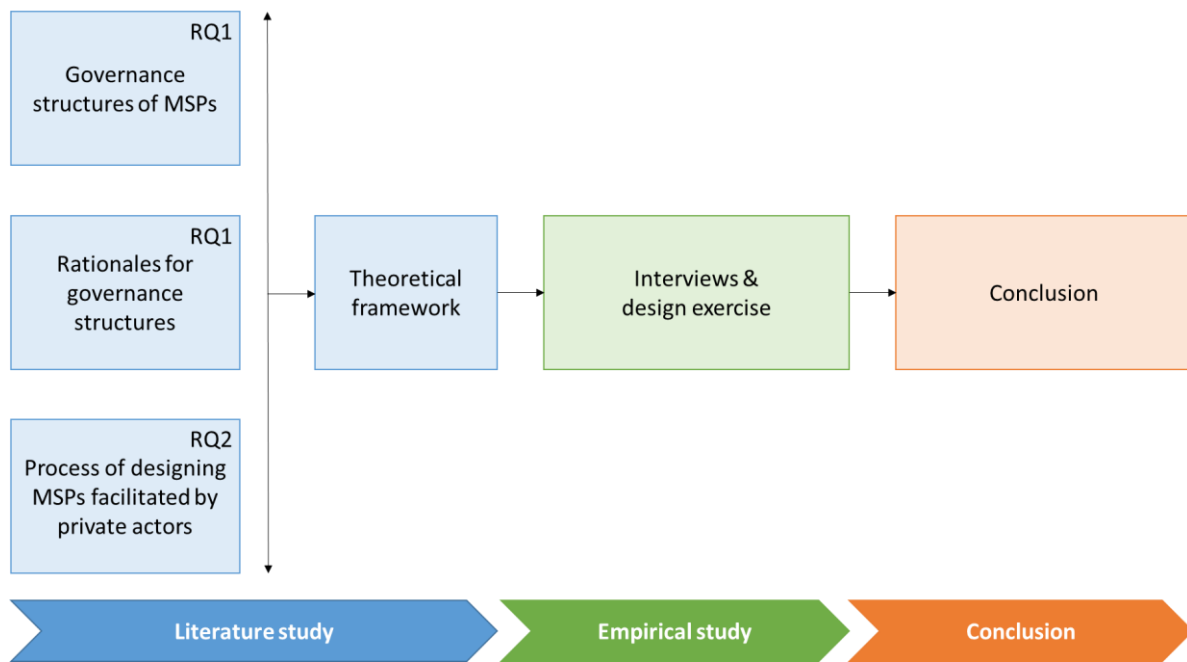


Figure 1: Research framework

The first phase of this research consists of a literature review. The research framework shows that the literature study relates to the sub-questions (1.1) and (1.2) of RQ1, and sub-question (2.1) of RQ2. The results of the literature study will be combined in a theoretical framework that integrates the theories relating MSPs in general, governance attributes and dimensions, governance rationales, and the process of designing MSPs by private actors as institutional entrepreneurs.

Then the theoretical framework is used as basis for the empirical study which consists of two rounds of interaction: interviews and a real design exercise with the stakeholders. The empirical study answers the sub questions (1.3) of RQ1 and (2.2) of RQ2. The influence of rationales on different governance dimensions are discussed for the Barilla Sustainable Farming Initiative and action steps are formulated for the design of the MSP.

Last, the conclusion provides recommendations for the Barilla Sustainable Farming Initiative on the influence of rationales on attributes and dimensions of governance structures (RQ1), and action steps for designing the MSP (RQ2).

## 1.3 TECHNICAL RESEARCH DESIGN

### 1.3.1 RESEARCH MATERIAL

This section describes what kind of information is needed, and how and where this information can be gathered to answer the research questions that are formulated in the conceptual design (Verschuren & Doorewaard, 2005). Table 1 provides an overview of the objects and the related source categories for this research.

Table 1: Source categories and related research objects.

Source Category	Objects
Literature review	Multi-stakeholder partnerships Attributes and dimensions of governance structures Rationales for governance structures Institutional entrepreneurship Process of designing and managing partnerships
Empirical study	Rationales for governance dimensions of the Sustainable Farming Initiative Process design for the Sustainable Farming Initiative Design exercise for the Sustainable Farming Initiative

Next, the research materials that are used in this research are specified for each sub-question. The first general research question is: *“How do rationales influence the attributes and dimensions of governance structures when designing a MSP in the adoption of sustainable innovations in food value chains?”*

(1.1) What are attributes and dimensions characterizing MSP governance structures?

The information sources that are used to answer the first sub-question are literature and documents. Answering this sub-question contributes to the theoretical framework.

(1.2) What are rationales that influence the attributes and dimensions of governance structures when designing a MSP?

The information sources that are used to answer the second sub-question are literature and documents. Answering this sub-question contributes to the theoretical framework.

(1.3) How do rationales influence the attributes and dimensions of governance structures in case of the Barilla Sustainable Farming Initiative?

The information sources that are used to answer the third sub-question are literature, documents of the stakeholders, interviews with stakeholders, and participant observation during a multi-stakeholder meeting.

The second general research question is: *“What are the steps to design a MSP in the adoption of sustainable innovations in food value chains, promoted and facilitated by private actors?”*

(2.1) What is the process of designing a MSP?

The information sources that are used to answer the first sub-question are literature and documents. Answering this sub-question contributes to the theoretical framework.

(2.2) What are the steps for the Barilla Sustainable Farming Initiative in designing the MSP?

The information sources that are used to answer the third sub-question are literature, documents of the stakeholders, interviews with stakeholders, and participant observation during a multi-stakeholder meeting.

### 1.3.2 RESEARCH STRATEGY

The research strategy refers to the decisions about the methods by which the research is conducted (Verschuren and Doorewaard, 2010). The research strategies in this research will be: desk research, and a combination of case study analysis and action research.

First, desk research is searching for information on existing scientific literature and secondary data, which is collected by others (Verschuren & Doorewaard, 2010). In this research, a theoretical framework is formed based on the desk research. The theoretical framework discusses how rationales influence dimensions and attributes of governance structures as part of the design process of MSPs, facilitated by private actors as institutional entrepreneurs.

Second, the empirical study of this research is done by action research, where the Barilla Sustainable Farming Initiative is used as a case. This research targets a practical question and there are multiple interaction and feedback moments with the stakeholders throughout the research, indicating elements of action research approach (Baskerville, 1997). In addition, a real design exercise is done with the stakeholders of this initiative to design a MSP and a set of pilot contracts.

## 1.4 REPORT OUTLINE

The outline of the report is as follows. Chapter 2 provides a literature study on the concepts of partnerships, attributes and dimensions of governance structures with related rationales, and the design process of an MSP facilitated by institutional entrepreneurs. The findings of the literature study are combined in a theoretical framework that will form the basis of the empirical analysis. Chapter 3 introduces the case of the Barilla Sustainable Farming Initiative, which is the case of the empirical part of this research. Then, chapter 4 discusses the methodology of the empirical analysis. The results of the analysis are presented in chapter 5. Chapter 6 and 7 discuss the discussion and conclusion of this research respectively.

## 2. THEORETICAL BACKGROUND

Chapter 2 will form the theoretical background of this research. Here, the sub-questions (1.1), (1.2), and, (2.1) will be answered by a literature study. First, the concept of public private partnerships (PPPs) will be discussed in section 2.1 to provide an understanding of the current literature of PPPs in terms of definition, benefits, challenges, rationales, and preconditions. Second, an extensive literature study will be done on governance of MSPs in section 2.2, presenting an overview of continua that are used to categorize governance structures. Then section 2.3 will make a selection of three dimensions of governance of MSPs and in section 2.4 rationales will be discussed for each of the three selected governance dimensions. Then, section 2.5 will discuss the concept of institutional entrepreneurship and explains how the initiative of a private actor in the process of designing an MSP shapes the institutional environment. Section 2.6 will present the process of partnership design in four phases. Lastly, section 2.7 will discuss the theoretical framework that is developed based on the concepts in the sections 2.1-2.6.

### 2.1 PUBLIC PRIVATE PARTNERSHIPS

This research focusses on MSPs as main concept according to the definition of Brouwer et al. (2015). However, the theory is complemented with elements borrowed from theory about PPPs because these concepts are strongly related and overlapping. It is likely that public actors, such as the (regional) government, will be involved in the case study of the Barilla Sustainable Farming Initiative, so public-private elements are considered relevant in the design of this specific MSP.

A public private partnership is defined by the World Bank as a “*long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance*” (World Bank, 2014, p. 14). This definition can be complemented by referring to a ‘golden triangle’, in which businesses, knowledge institutes and (national) governments are cooperating towards a shared vision (Verdouw et al., 2014). Some argue that there is not a single definition of a PPP (Grimsey & Lewis, 2005; Hodge & Greve, 2007). PPPs are very diverse and can cover a variety of problems and a variety of forms in between public services and full privatization (De Schepper, 2013; Grimsey and Lewis, 2005; Roehrich et al., 2014). Generally, the private sector is getting involved in a previously pure public sector responsibility (Grimsey & Lewis, 2005; Kivleniece & Quelin, 2012). Although there is a large variety in partnerships, PPPs can be seen as long-term arrangements (Cruz & Marques, 2013; Hodge & Greve, 2007; Kivleniece & Quelin, 2012; World Bank, 2014).

PPPs are widely discussed in literature in terms of value creation (Grimsey & Lewis, 2005), contracting and governance (Johnston & Gudergan, 2007; Teisman & Klijn, 2002), game theory in negotiation of partnerships (Glumac et al., 2014), and risk and uncertainty (Cruz & Marques, 2013; Hartcasle & Boothroyd, 2003; Hodge, 2004; Hwang et al., 2013). Moreover, PPPs are discussed in different sectors purposes such as education (Patrinos et al., 2009), infrastructure (Hodge, 2004; Hoppe et al., 2011; Johnston & Gudergan, 2007), reduction of food waste (Halloran et al., 2014), energy projects (Heldeweg et al., 2015), health care and nutrition (Kraak et al., 2011; Nikolic & Maikisch, 2006), and sustainable development (Backstrand, 2006; Brouwer et al., 2015).

Partnership motivations are existence of assumptions of risks (Johnston & Gudergan, 2007; Roehrich et al., 2014), or strategic issues, such as assessment of opportunities and threats and use of own strengths and weaknesses to decrease them (Dentoni et al., 2012). Organizational and

human resources and capabilities are also elements that shape a multi-stakeholder partnership (Dentoni et al, 2012). In addition, Hartwich et al. (2008) argue that the objective or common interest of the different stakeholder is a determinant of how the partnership is formed (Hartwich et al., 2008).

Benefits of a partnership are maximisation of cross-disciplinary expertise among stakeholders to solve complex problems (Hartwich et al., 2008; Hodge & Greve, 2007; Rowe et al., 2013), which are not possible to solve by a single party (Brouwer et al., 2015). Other benefits are that maximizing or complementing resources lead to greater competitiveness and improved position in the market (Hartwich et al., 2008; Rowe et al., 2013), costs and risks are shared across the stakeholders (Hartwich et al., 2008; Hodge & Greve, 2007; Nikolic & Maikisch, 2015; Rowe et al., 2013), learning and collaboration increase the opportunity of systemic change (Brouwer et al, 2015), and involvement of the private sector in previous public issues can lead to higher efficiencies and productivity (Levy, 1996).

There are several preconditions for a successful partnership. First, a successful partnership requires overlapping agendas and motivations between all the involved stakeholders (Heldeweg et al., 2015). Moreover, trust is an important element, which is based on reputations, past experiences, or previous relations between the stakeholders (Glasbergen et al., 2007). In addition, allocation of responsibility and authority is needed (De Schepper et al., 2013) by for example a contractual agreement (Glasbergen et al., 2007). Before establishing a PPP, it is recommended to do as much preliminary work as possible on for example the goals and objectives, conflict issues or funding issues (Rowe et al., 2013). It can take several years before a partnership can formally launched (Rowe et al., 2013). Lastly, appropriate stakeholder management processes are crucial for the success of PPPs (De Schepper et al., 2013).

There also challenges for PPPs. First, Bitzer (2012) argues that from a development perspective the capacity of partnerships can be considered insufficient because of the focus on incremental change (instead of radical), ambiguous standards and certifications, inability to empower smallholders due to power imbalances, and an uncertainty in the durability of the achievements of the partnership. Also differences in perspectives between public and private parties in terms of time horizons, objectives, and expected results can lead to challenges to establish an effective or successful PPP (De Schepper et al., 2012; Rossi & Civitillo, 2014; Rowe et al., 2013). Moreover, inappropriate or missing performance incentives can lead to a low level of innovation (Roehrich et al., 2014), and tensions and claims ex post can decrease efficiency (Kivleniece & Quelin, 2012). In addition, the involvement of the private sector in public issue can be a challenge because then the private sector has the responsibility to use its problem solving capacity for public issues and not for shareholders' interest only (Glasbergen et al., 2007). As a result, it is costly in both time and resources to design and implement an effective partnership (Brouwer et al., 2015).

## 2.2 GOVERNANCE OF MSPs

Partnerships imply a new form of governance (Backstrand, 2006). Legitimacy issues, such as transparency and agreed strategies for monitoring effectiveness, are important aspects that affect the success or failure of PPPs and MSPs (Backstrand, 2006). The effectiveness of governance mechanisms is formed by the interaction of all the actors that are involved in the supply network, not only by the decisions of individual firms (Esty & Winston, 2006; Plamback, 2012, cited in Tachizawa & Wong, 2015).



Literature illustrates a wide spectrum of governance structures for MSPs. It can vary by several different characteristics: ownership of capital assets (Roehrich et al., 2014; Rossi & Civitillo, 2014), type of assets involved such as ‘greenfield’, referring to involvement of private companies in building or managing new public assets, or ‘brownfield’, referring to responsibility of upgrading and managing existing assets (Worldbank, 2014), the functions of the different parties, such as design, build, rehabilitate, finance, maintain or operate (Johnston & Gudergan, 2007; Tvarno, 2010; Worldbank, 2014), payment mechanism (Kivleniece & Quelin, 2012; Tvarno, 2010; Worldbank, 2014), and duration of the contract (Rossi & Civitillo, 2014). Social elements can also have a large influence on the governance structure of a partnership, such as trust, mutual adjustment, moral responsibility, and ability to work with different subcultures and operating logics of different stakeholders (Johnston & Gudergan, 2007).

Moreover, a large number and types of governance modes are discussed in literature. In these papers, “ideal types” of modes of governance structures are developed and categorises according to a list of relevant attributes. For example, Williamson (1985) differentiates modes of governance by markets and hierarchies. Others extend Williamson’s framework by changing or adding categories such as (1) community, market, state (Streeck & Schmitter, 1998), (2) markets, politics, solidarity (Mayntz, 1993; cited in Lowndes & Skelcher, 1998), (3) markets, bureaucracy, clans (Ouchi, 1991), (4) price, authority, trust, (Bradach & Eccles, 1991), and (5) markets, hierarchies, networks (Entwistle et al., 2007; Lowndes & Skelcher, 1998). These categories can be seen as ideal types, but are not mutually exclusive (Lowndes & Skelcher, 1998).

Lowndes & Skelcher (1998) categorize the *market*, *hierarchy*, or *network* governance modes according to attributes such as normative basis, means of communication, methods of conflict resolution, degree of flexibility, amount of commitment among the parties, tone or climate, and actor preferences of choices. In addition, Lowndes & Skelcher (1998) put forward that a *partnership* is not necessarily the same as a *network*. A partnership can be seen as an organizational structure and does not automatically imply a network as mode of governance where relationships are based on mutual benefit, trust, and reciprocity (Lowndes & Skelcher, 1998). However, partnerships can imply various modes of governance such as market, hierarchy or network. Lewis et al. (2008) describe partnerships as a potential form of network governance, indicating a “*formalised network designed to manage inter-organizational relationships*” (Kickert et al., 1997; cited in Lewis et al., 2008, p. 281). In other literature, networks and partnerships are used interchangeably (Cornforth et al., 2014; Lau, 2014; Teisman & Klijn, 2002) showing that there is no consensus about these concepts in literature.

Kivleniece & Quelin (2015) distinguish two ideal types of governance structures that form both ends of a continuum: *autonomous* and *integrative*. An autonomous mode refers to “*independent private management with public supervision*” (Kivleniece & Quelin, 2015, p. 15), and an integrative mode refers to “*mutual operations under shared management*” (Kivleniece & Quelin, 2015, p. 17). These alternatives relate to different value-creating and capturing mechanisms. These forms are categorized according to operational model (how are operational tasks distributed between the public and private partner and how are they coordinated, monitored, and controlled), revenue model (does the private party receive revenue from end-users or from the public party), and the governance features (strong/weak authority, division of property rights, and high/low powered incentive regime).

Another conceptual framework that aims to provide clarity on governance mode is developed by Lange et al., (2013) and distinguishes three dimensions: *politics* (political processes), *polity* (institutional structures), and *policy* (policy content). Lange et al., (2013) acknowledge with this framework the inherent complexity of governance by arguing that these three dimensions are interdependent. Governance is defined as “*forms of realizing collective goals via collective action*” (Lange et al., 2012, p. 407). Actors and resources are key features in politics, institutions and norms, and policy objectives and instruments are key features in the polity and policy dimension respectively. Moreover, three frameworks for governance modes are discussed and compared (Arnouts et al., 2015; Hysing, 2009; Driessen et al., 2012; cited in Lange et al., 2013).

Waring et al., (2013) differentiate between *tight* and *loose* partnerships. Where tight arrangements refer to horizontal resource sharing and collaboration, and loose arrangements include vertical contracting between a public purchaser and a private provider. Tight/loose differentiation is made based on characteristics of financing & risk sharing, collaboration in strategic planning and design, and level of resource sharing. Waring et al., (2013) also explore the relationship between “upstream” tight or loose arrangements and “downstream” service and workforce management.

Furthermore, Keast et al. (2007) define three forms of horizontal integration modes for policy and service in a level of integration continuum: *cooperation*, *coordination*, and *collaboration*. The three integration modes differ in level of connection and intensity. Furthermore, Keast et al., (2007) argue that the “3C’s” are complementary and not competitive. It is the key to select the right mix.

Other authors also highlight that the traditional dissection between markets and hierarchies or public and private is disappearing (Teisman & Klijn, 2002). Firms and governments are working together in networks and relationships become more important than only market transactions or hierarchies. Three forms of private involvement are presented and discussed: *contracting out*, *partnering model*, and the *combination model* of the previous mentioned.

Røiseland (2011) defines a continuum of institutional forms of collaboration, ranging from *loose and floating* to *formal* structures. Forms of collaboration are categorized according to network characteristics such as interdependency, negotiations, and self-regulation, or according to organizational characteristics such as enabling of authority, power and power sources, structured communication, and planning, goals, and implementation.

Keast & Hampson (2007) argue that a *network* form of governance needs other management skills and processes because it has a strong focus on building and maintaining relationships. Hybrid modes are formed, resulting in unique characteristics in the institutional arrangements such as a tension between competition and cooperation, tension between power and loyalty, and the mixture of trust, authority, and contract. Four network management tasks are explained: activating, framing, mobilizing, and synthesising (Kickert et al., 1997; Agranoff & McGuire, 2001a&b; cited in Keast & Hampson, 2007).

Strategic collaboration between non-profits and businesses is discussed by Austin (2000). This article presents a collaboration continuum for different types of partnerships and potential development through three different stages: *philanthropic* (stage 1), *transactional* (stage 2), and *integrative* (stage 3). The stages are categorised by level of engagement, importance to mission, magnitude of resources, scope of activities, level of interaction, managerial complexity, and strategic value. Also drivers and enablers for effective management of the relationship are

presented. Drivers strengthen the collaboration (alignment of strategy, mission, and values; personal connection and relationships; value generation and shared visioning; and continual learning). Enablers are the primary factors pushing the collaboration (focused attention, communication, organizational systems, and mutual expectations and accountability).

Smith et al. (2006) categorise partnerships based on purpose. The following three types are distinguished: *agency* (delivery of national policy in the locality), *clubs* (provision of mutual benefits), and *polity* (creation of a new political entity). Also eight principles for improvement of partnerships governance are explained.

Entwistle et al. (2007) speak about *markets*, *hierarchies* and *networks* as three ideal types of co-ordination. A model is developed that states that no type can exist completely isolated from the others. Moreover, it is impossible “*to have the best of all worlds*” (Entwistle et al., 2007, p. 66). High levels of trust and reciprocity involve lower levels of hierarchy and market co-ordination and the benefits that belong these types of co-ordination.

Moreover, Lowndes & Skelcher (1998) argue that governance is dynamic and can change over time. Different phases from pre-partnership collaboration up to partnership termination or succession require different modes of governance and relationships between stakeholders (table 2). Both cooperation and competition can be existing throughout the different phases.

Table 2: Dynamics in governance (Source: Lowndes & Skelcher, 1998, p. 321)

Stage in the lifecycle	Mode of governance	Relationship between stakeholder
Pre-partnership collaboration	Networking between individuals/organizations	Informality, trust and cooperation. Willingness to work together to achieve collective purpose. Differential resources result in emergence of inner and outer networks, with some actors becoming marginalized.
Partnership creation and consolidation	Hierarchy incorporating some organizations. Formalization of authority in partnership board and associated staff.	Negotiation and contest over definition of membership and allocation of board seats. Disruption of network as informal balance of power codified. Informal systems and agreements are replaced by hierarchical structure with formalized procedures and decisions.
Partnership programme delivery	Market mechanisms of tendering and contractual agreements. Regulation and supervision of contractors. Networking assists in production of bids and management of expenditure programme.	Low cooperation between providers. Purchases’ suspicion of overselling by potential providers. Distinction between inner and outer network sharpens as partnership determines agreed bids and /or fund allocation. Reliance on informal agreements within network to negotiate complexities of contracts. Emergence of trust-based contracting with some organizations.
Partnership termination and succession	Networking between individuals/organizations as means to maintain agency commitment, community involvement and staff employment.	Uncertainty as network stability afforded by partnership comes to an end. Potential for new openness/expansion of links. Trust and informality, with negotiation and contest concerning strategic role of partnership.

Also Cornforth et al., (2014) discuss governance dynamics at the inter-organizational level. Their framework addresses change and development in governance structure of collaborations between non-profit organizations with the public sector. Cornforth et al., (2014) describe four streams – *problems, solutions, political/social/economic conditions, and organizational conditions* – that must be exploited by a collaborative entrepreneur, who acts as a catalyst for forming collaboration. Moreover, change is restricted by organizational inertia and lack of skill and facilitated by tension between efficiencies and inclusiveness, conflicting priorities of partners, and changing mentorship.

Tachizawa and Wong (2015) argue that governance mechanisms of supply chain management (SCM) – focussed on assuring cost, quality, and speed - are different than governance mechanisms of green supply chain management (GSCM) – with a special focus on environmental sustainability – according to three reasons. First, in environmental issues, more information asymmetry and less visibility (ability to access information throughout the SC) result in a bigger change of hidden risk involved than in the SCM issues cost, quality or speed. Second, visibility in GSCM is lower compared to SCM, because the impact of second tier suppliers becomes more important when considering environmental issues. Third, many firms still consider cost, quality, and speed issues as more important than environmental aspects of the supply chain (Tachizawa & Wong, 2015).

Table 3 below provides a summary of the different continua and frameworks that are presented earlier in this section.

Table 3: Overview of governance frameworks and continua

Williamson (1999), p. 314: Attributes of private ordering governance structures			
	MARKET	HYBRID	HIERARCHY
<i>Instruments</i>			
Incentive intensity	Strong	Semi-strong	Weak
Administrative controls	Weak	Semi-strong	Strong
<i>Performance attributes</i>			
Adaptive autonomy	Strong	Semi-strong	Weak
Adaptive integrity	Weak	Semi-strong	Strong
Contract law	Strong	Semi-strong	Weak
Williamson (1999), p. 336: Comparative public sector organization			
	PRIVATIZATION	REGULATION	PUBLIC AGENCY
<i>Instruments</i>			
Incentive intensity	Strong	Semi-strong	Weak
Administrative controls	Weak	Semi-strong	Strong
<i>Performance attributes</i>			
Adaptive autonomy	Strong	Semi-strong	Weak
Adaptive integrity	Weak	Semi-strong	Strong
<i>Contract law</i>			
Employment relation			
Executive autonomy	Strong	Semi-strong	Weak
Staff security	Weak	Semi-strong	Strong
Legalistic dispute settlement	Strong	Semi-strong	Weak
Lowndes & Skelcher (1998), p. 319: Modes of governance of multi-organizational partnerships			
	MARKET	HIERARCHY	NETWORK
Normative basis	Contract – property rights	Employment relationship	Complementary strengths
Means of communication	Prices	Routines	Relational
Methods of conflict resolution	Haggling – Resort to courts	Administrative fiat - supervision	Norm of reciprocity – reputational concerns
Degree of flexibility	High	Low	Medium
Amount of commitment among the parties	Low	Medium	High
Tone or climate	Precision and/or suspicion	Formal, bureaucratic	Open-ended, mutual benefits

Actor preferences and choices	Independent	Dependent		Interdependent	
Kivleniece & Quelin (2012), p. 59: Public-private ties					
	AUTONOMOUS		INTEGRATIVE		
Operational model	Operational tasks delegated to private partner		Operational tasks shared with public partner		
	Low need for coordination between public and private counterparts		High need for coordination between public and private counterparts		
	Public authority assumes monitoring and supervisory roles		Important role of public partner resources and capabilities		
Revenue model	Private actor derives revenue from end users		Private actor derives revenue from public partner		
Governance features	Strong private actor authority		Weak private actor authority		
	Predominantly private property rights		Shared property rights with public partner		
	High-powered incentive regime		Low-powered incentive regime		
Arnouts et al. (2012); cited in Lange et al. (2013), p. 412: Ideal-typical governance modes					
	HIERARCHICAL GOVERNANCE	CLOSED CO-GOVERNANCE	OPEN CO-GOVERNANCE	SELF-GOVERNANCE	
Actors	Mainly governmental actors	Select mixed group of actors	Large mixed group of actors	Mainly non-governmental actors	
Power	With government	Pooled	Diffused	With non-government	
Rules	Government coercion	Restricted cooperation	Flexible collaboration	Non-governmental forefunning	
Hysing (2009); cited in Lange et al., (2013), p. 414: Ideal-typical governance modes					
	STATE INTERVENTION <-----> SOCIETAL AUTONOMY				
Public-private relationships	Hierarchic relationship	Institutionalized public-private relations (state domination)	Facilitation and enabling of networks	Mutual dependency of networks between private and public actors	Private self-governing
Policy levels	National state governing	Delegation of authority and responsibility to other levels	Gatekeeping (governing in implementation)	Multilevel governance (circumventing the national level)	Governing by a global civil society
Governing instruments and styles	Command and control (legal sanctions)	Incentive-based instruments (taxes and grants)	Delegated public functions	Information instruments	Voluntary instruments (agreements and labelling)
Driessen et al., 2012; cited in Lange et al. (2013), pp. 415-416: Ideal-typical governance modes					
	CENTRALIZED GOVERNANCE	DECENTRALIZED GOVERNANCE	PUBLIC PRIVATE GOVERNANCE	INTERACTIVE GOVERNANCE	SELF-GOVERNANCE
Actor features					
Initiating actors	Central gov't agencies (or supra national bodies)	Gov't at its various levels of aggregation (subsidiarity)	Central gov't agencies; private sector is granted	Multiple actors: gov't, private sector and civil society	Private sector and/or civil society

			a preconditioned role also		
Stakeholder position	Stakeholder autonomy determined by principal agency	High likelihood of stakeholder involvement	Autonomy of market stakeholders within predetermined boundaries	Equal roles for all network partners	Self-governing entities determine the involvement of other stakeholders
Policy level	(Supra) national level	Lower levels of gov't	Local to international level	Multiple levels	Local to international level
Power base	Coercion, authority and legitimacy (democratic representation at the national level)	Coercion, authority and legitimacy (democratic representation at lower levels)	Competitiveness (prices), contracts and legal recourse, legitimacy (agreement on relations and procedures)	Legitimacy (agreement on roles, positions, procedures and process), trust, knowledge	Autonomy, leadership, group size, social capital and legitimacy (agreement on relations and procedures)
<i>Institutional features</i>					
Model of representation	Pluralist (popular (supra) national election and lobbying	Pluralist (popular local election and lobbying)	Corporatist (formalized public-private governing arrangements)	Partnership (Participatory public-private governing arrangements)	Partnership (Participatory private-private governing arrangements)
Rules of interaction	Formal rules (rule of law, fixed and clear procedures)	Formal rules (rule of law, fixed and clear procedures)	Formal and informal exchange rules	Institutions in its broadest form (Formal and informal rules)	Informal rules (norms, culture), Self-crafted (non-imposed) formal rules
Mechanisms of social interaction	Top-down, command-and-control	Sub-national governments decide autonomously about collaborations within top-down determined boundaries	Private actors decide autonomously about collaborations within top- down determined boundaries	Interactive: social learning, deliberations and negotiations	Bottom-up: social learning, deliberations and negotiations
<i>Features concerning content</i>					
Goals and targets	Uniform goals and targets	Uniform and level specific goals and targets	Uniform goals, targets actor specific	Tailor-made and integrated goals and targets	Tailor-made goals and targets
Instruments	Legislations, permits, norms and standards	Public covenants and performance contracts	Incentive based instruments like taxes and grants, performance contracts	Negotiated agreements, trading mechanisms, covenants and entitlements	Voluntary instruments, private contracts, entitlements, labelling and reporting

Policy Integration	Sectorial (policy sectors and levels separated)	Sectorial (policy sectors separated)	Sectorial (branches and industries separated)	Integrated (policy sectors and policy levels integrated)	Sectorial to integrated (depends on problem framing by communities of interest)
Policy-science interface	Primacy of generic, expert knowledge	Primacy of generic expert knowledge. Room for issue and time- and place-specific knowledge	Dominance of issue and time- and place-specific knowledge, expert and lay (procedures and consumers)	Transdisciplinarity: expert and lay knowledge in networks. Emphasis on integrated and time- and place-specific knowledge	Dominance of issue and time- and place-specific: expert and lay (citizens)
Waring et al. (2013), p. 318: Public private partnerships					
	LOOSE		TIGHT		
Partnership configuration & dependence	Loosely configured <ul style="list-style-type: none"><li>Independent organization</li><li>Focus on competition</li></ul>		Tightly configures <ul style="list-style-type: none"><li>Interdependence of organizations</li><li>Collaborative working</li></ul>		
Strategic orientation	Outward looking <ul style="list-style-type: none"><li>Priority given to shareholders</li><li>Emphasis on competitive performance</li></ul>		Inward looking <ul style="list-style-type: none"><li>Emphasis internal stakeholders</li><li>Emphasis on operational performance</li></ul>		
Character of professionalism	Individual approach <ul style="list-style-type: none"><li>Disparate professional backgrounds</li><li>No collegiality</li></ul>		Collective approach <ul style="list-style-type: none"><li>Shared identity and ethos</li><li>Emphasis on professionalism and patient</li></ul>		
Management approach	Hard approach <ul style="list-style-type: none"><li>Standardization of work</li><li>Performance management</li></ul>		Soft approach <ul style="list-style-type: none"><li>Established practices</li><li>Engagement of staff</li><li>Staff-led change</li></ul>		
Keast et al. (2007), p. 27: Horizontal integration forms					
	FULLY FRAGMENTED <-----> FULLY CONNECTED				
	COOPERATION		COORDINATION		COLLABORATION
Time taken to establish	Short term		Medium term		Longer term
Goals/perspective	Purpose: dialogue/ information sharing; base of support Independent/ autonomous		Purpose: Align resources to meet (predetermined) goal Retains autonomy but gives some element to joint effort joint planning and programming -semi- autonomous		Purpose: Synergize to create something new/systems change Highly interdependent with sharing of power
Structural linkages	Movement in and out by members, loose links/ low intensity level		Some level of stability of membership, medium links		Members move outside traditional functional areas, tight/dense links



Formality	Informal	Informal/ formal	Informal/ formal
Risk/Rewards	Low risk/ modest reward	Increase in benefits and risks	High risk/ high reward
<b>Teisman &amp; Klijn (2002), p. 203: Forms of private involvement</b>			
	CONTRACTING OUT	COMBINATION MODEL	PARTNERING MODEL
Role government	Government specify what is needed	Global definition of governmental aims	A joint public-private platform specifies the projects needed
Process characteristics	Tendering procedure leading to contracting out	Early tendering procedure choosing the best private proposal even though a definitive public decision making is not available	Joint principal position in relation to parties who tender for parts of the projects
Role private actor	Private production of specified project	Private proposal in interaction with public decision making	Joint development by private and public organizations
Action	Finished job handed over to government	Project realization by private companies	Joint schemes for production and exploitation
<b>Keast &amp; Hampson (2007), p. 5: Governance, management, and integrating mechanism schema</b>			
	HIERARCHY	MARKET	NETWORKS
Integration relationship orientation	Authority relationships	Exchange relationships	Social/communal relationships
Key integration mechanisms	Centralized & legitimate authority, rules, regulations, procedures and legislation	Formalized, legal contractual arrangements, Arms-length transactions, bargaining	Interpersonal trust, mutuality & reciprocity
Institutional arrangements	Committees, working parties, interdepartmental committees	Business associations, Corporate boards	Networked Arrangements, Collaborations, Social charters & Compacts & Roundtables
Management focus	Administrative management	Contractual management	Relational management
<b>Austin (2000), p. 72: Collaboration continuum between non-profits and businesses</b>			
	STAGE I: PHILANTHROPIC	STAGE II: TRANSACTIONAL	STAGE III: INTEGRATIVE
Level of engagement	Low	→	High
Importance to mission	Peripheral	→	Central
Magnitude of resources	Small	→	Big
Scope of activities	Narrow	→	Broad
Interaction level	Infrequent	→	Intensive
Managerial complexity	Simple	→	Complex
Strategic value	Minor	→	Major

## 2.3 THREE DIMENSIONS OF GOVERNANCE

From the overview of governance structures in section 2.2, three continua are selected. These continua present three different dimensions of governance structures, each explained by different attributes. The three dimensions deal with the level of integration, the level of public involvement, and the level of administrative support of the partnership respectively. Table 4, 5, and 6 show the three dimensions with the related attributes.

First, the **level of integration** refers to the continuum developed by Keast et al. (2007). Three categories are defined: cooperation, coordination, and collaboration that each represent a different level of integration – or intensity of the connections. Integration can be either vertical oriented (authority-driven, formal structural) or horizontal oriented (relationship based). Efforts have been made to integrate services by means of both vertical and horizontal modes, but the emphasis has shifted towards horizontal integration as a result of increased awareness that individual actors, such as governments or non-profit, cannot deal with complex or ‘wicked’ social issues alone and the increasing involvement of citizens in decision making (Keast et al., 2007). Horizontal integration is *“intra- or inter- organizational relationships ranging from autonomous, loose, fragmented arrangements located at one end of the spectrum, to a fully connected system at the other”* (Keast et al., 2007, p. 12). The continuum is presented below in table 4 and focusses on the level of horizontal integration.

Cooperation is the first ideal type found at one side of the spectrum, developed by Keast et al. (2007). Cooperation is conceptualized as starting point of inter-organizational relationships and is characterized by small efforts, low levels of relationships intensity, and organizations remain independent and autonomous. It involves low risk because no changes are required in existing practices. Organizations take into account each other’s goals, and relations are short term and informal.

Coordination is found in the middle of the continuum - between cooperation and collaboration - and implicates that there is a shared goal between the partners and they work together according to more structured mechanisms than in case of cooperation. Although, there is a shared goal there is no loss of individual autonomy of the different partners. The partnerships focus on fulfilment of tasks or activities that are managed to drive a specific outcome (Keast et al, 2007). In addition to information sharing, it requires joint planning and possible join funding. Increase of effort and commitment can lead to growing shared benefits and shared risks.

Collaboration is the ideal type found at the other side of the spectrum and goes beyond the instrumental process of joint task fulfilment. Collaboration deals with high intensive relationships, connections and resources such that even boundaries between agencies can become blurred. Collaboration is characterised by shared goals and goal setting, high level of commitment and contribution, and high levels of trust. In addition to the joint instrumental approach that is associated with coordination, also new forms of engagement, structures, and processes are developed over time. Moreover, collaboration has potential to achieve greater efficiencies of scale and outcomes that cooperation and coordination, but it is difficult to develop and to sustain. This integration form also involves the highest degree of risk. Therefore, coordination is often considered safer, requires less time to establish, and lies within the comfort zone. Collaboration is not the answer to all issues, but a good strategy *“where issues are complex and cut across agencies an across government”* (Keast et al., 2007, p. 21).

Table 4: The level of integration

1. Level of integration			
	<b>Cooperation</b>	<b>Coordination</b>	<b>Collaboration</b>
Time taken to establish	Short term	Medium term	Longer term
Goals	Dialogue/information sharing	Align resources to meet (predetermined) goal	Synergize to create something new/systems change
Actor	Independent/autonomous	Semi-autonomous	Interdependent
Sharing of power	Low	Medium	High
Structural linkages	Movement in and out by members (loose)	Some level of stability of memberships (medium)	Members move outside traditional functional areas (tight)
Risk	Low	Medium	High
Reward	Modest	Medium	High

The second dimension is the **level of public involvement** in the partnership. Autonomous forms refer to independent private management with public supervision, while integrative forms refer to mutual operations under shared management (Kivleniece & Quelin, 2012). The two forms differ in attributes such as operational tasks (degree of task sharing), revenue models (end user or tax-based sources), and governance features like authority, property rights, and incentives (Table 5).

The autonomous governance mode entails that the private actors act relatively independent of the public actor (Kivleniece & Quelin, 2012). The public authority delegates rights and tasks to the private party such that the private partner undertakes investment and service provision in public assets. The public partner only deals with monitoring and enforcement functions to make sure contractual responsibilities are met such as investment, pricing or service quality. Moreover, the private actor derives the revenue from end-users or consumers of the service. Because the private actor is also responsible for most production costs, this form involves strong efficiency incentives and reliance on the private sector skills and competences. Benefits of this form are relative resource cost advantages of the private sector and resource allocation decisions. However, costs increase because of higher costs of supervision and control to safeguard public interest. Value is created when the welfare gains of maximizing efficiency exceeds these costs of supervision and control.

The other side of the continuum refers to the integrative governance mode (Kivleniece & Quelin, 2012). Here the responsibilities are shared between the public and private partners such as the development, management and delivery of a public good or service. Private actor revenue is derived from the public sector allocations and policy rather than that it is formed by actual output. However, the private actor still has responsibilities in operational efficiency or service delivery. Consequently, this governance mode entails lower levels of market uncertainties for the private actor because these are shared with the public partner. However, there is an increase in dependence on public sector resources, need for mutual coordination, and appropriation concerns. Concerning the governance features, the integrative mode involves shared authority, shared property rights with the public partner. In turn, heavier involvement of the public partner leads to lower-powered incentives (public sector or nonmarket mechanisms) – and weaker efficiencies.

Table 5: The level of public involvement

2. Level of public involvement		
	<b>Autonomous</b>	<b>Integrative</b>
Operational model	Operational tasks delegated to private partner	Operational tasks shared with public partner
	Low need for coordination between public and private counterparts	High need for coordination between public and private counterparts
	Public authority assumes monitoring and supervisory roles	Important role of public partner resources and capabilities
Revenue model	Private actor derives revenue from end users	Private actor derives revenue from public partner
Governance features	Strong private actor authority	Weak private actor authority
	Predominantly private property rights	Shared property rights with public partner
	High-powered incentive regime	Low-powered incentive regime

The third dimension in this paper is the **level of administrative support** and focusses on contracts and transactions. The continuum in table 6 is based on the framework developed by Williamson (2002).

First, markets are characterised by strong price incentive intensity and weak administrative controls as instruments of coordination. Moreover, autonomous adaptation is strong, meaning that autonomous economic actors respond to spontaneously changes in the market, and mostly to changes in prices (Hayet, 1945; cited in Williamson, 2002). Dispute settlement occurs external through courts (Williamson, 2002).

Hierarchies are characterised by strong administrative controls (authority) and weak incentive intensity. Strong coordinated adaptation entails that economic actors do not act spontaneously but based on deep knowledge and use of administration (Barnard, 1938; cited in Williamson, 2002). Dispute settlement occurs through internal dispute resolution mechanisms (Williamson, 2002).

Third, hybrid forms are found in between markets and hierarchies on the continuum.

Table 6: The level of administrative support

3. Level of administrative support				
		<b>Market</b>	<b>Hybrid</b>	<b>Hierarchy</b>
Instruments of coordination	Incentive intensity (price)	Strong	Semi-strong	Weak
	Administrative controls (authority)	Weak	Semi-strong	Strong
Performance attributes	Autonomous adaptation	Strong	Semi-strong	Weak
	Coordinated adaptation	Weak	Semi-strong	Strong
Contract law		Strong	Semi-strong	Weak

## 2.4 RATIONALES FOR THE GOVERNANCE DIMENSIONS

### 2.4.1 THE LEVEL OF INTEGRATION

The level of integration refers to the intensity of the relationship and is based on the framework developed by Keast et al. (2007). Rationales that influence the level of integration are complexity of the issue, and requirements to solve these issues (Keast et al., 2007). These rationales are explained below and summarized in table 7.

**Complexity** of issues (“wicked issues”) – the larger the complexity or the “*wickedness*” of the issue at stake, and where the issue cuts across government and agencies, the more the partnership moves towards collaboration instead of cooperation or coordination (Keast et al., 2007).

**Requirements** – In addition to the complexity of the issue, also requirements to solve these issues indicate which level of integration fits the partnerships. When sharing of information is required and there is a basic level of compliance with others request, cooperation fits because it involves low risk and no changes are required in existing operations or practises (Keast et al., 2007). If we move further along the continuum and sharing of information is not enough, coordination is more suited as governance mode. Here activities are aligned across departments and agencies. Although, organizations remain separate from each other, a join program for activities is required such as planning or funding (Keast et al., 2007). If the problems are so complex that this is still not sufficient, we move further along the continuum towards collaboration. Here the level of integration is the highest with high levels of trust and members are committed to common missions (Keast et al., 2007).

Table 7: Partnership rationales for the level of integration

Partnership rationale		Cooperation	Coordination	Collaboration
<b>Complexity</b>	Wickedness of issue			+
	Cuts through government and agencies			+
<b>Requirements</b>	Only sharing information	+		
	Alignment of activities across departments or programs		+	
	Commitment to common missions			+

### 2.4.2 THE LEVEL OF PUBLIC INVOLVEMENT

The level of public involvement is based on the framework developed by Kivleniece & Quelin (2012). The value creating potential of public-private ties is associated with positive externalities, resource idiosyncrasies, and relative productive or governance efficiencies (Rangan et al., 2006; cited in Kivleniece & Quelin, 2012). Therefore, rationales for one of the two ideal governance types – autonomous and integrative – are environmental or context specific requirements (degree of market or technological uncertainty), the type of resources, and nature of externalities (Kivleniece & Quelin, 2012). These rationales are explained below and summarized in table 8.

**Reducing environmental uncertainty** – Environmental uncertainty is exogenous, meaning that it is related to the industry and not influenced by the behaviour of an individual firm. The effect of environmental uncertainty on the preferred governance mode depends on the type of uncertainty: (1) political or institutional, (2) market or volume related, or (3) technological (Kivleniece & Quelin,

2012). First, political or institutional uncertainty can exist because of unstable political environment, underdeveloped institutions, or weakly enforced government commitments. Consequently, private actors want to be less dependent on the government and the autonomous governance mode is preferred when collaborating with the public sector. Second, market or volume uncertainty entails that it is difficult to predict demand and the integrative mode is preferred because the public party can guarantee some volume purchases, risks, and investments, and input costs are shared. Third, technological uncertainty can cause difficulties in predicting future dominant design. Here also, the integrative mode is preferred because the public party can act as safeguard.

**Compensating for market externalities** – Positive market externalities are benefits for society at large as a results of a private economic opportunity (Kivleniece & Quelin, 2012). A high degree of positive market externalities means that the private actor is more likely to engage in the integrative governance mode. Kivleniece & Quelin (2012) explain that positive market externalities are in the interest of the public actor, who is more likely to compensate or co-finance initiatives that creates social gains (such as health care, energy projects, public transportation).

**Accessing/exploiting idiosyncratic resources** – The choice for governance structure is also dependent on the underlying resources of both parties (Kivleniece & Quelin, 2012). For example, the private sector can improve service quality based on private sector resource advantages. The public sector may have valuable property- or knowledge based resources and provide access to net markets, or improve innovation and organizational capabilities. Three categories of resources and capabilities are distinguished: (1) Property-based, (2) knowledge based, and (3) political resources and capabilities (Kivleniece & Quelin, 2012). First, larger values of the property-based resources of the public actor make it more attractive for the private actor to engage in the autonomous governance mode. Second, knowledge-based resources of the public sector on the one hand are encouraging the private actor to engage in integrative governance modes rather than autonomous modes. Close cooperation is needed to enable inter-organizational learning, and transfer of knowledge, skills, and routines. On the other hand, knowledge-based resources of the private actor encourage private actors to operate in an autonomous mode. Third, political resources and capabilities can be political skills, informal networks, and ties with politicians. If the value of the private political resources and capabilities is larger, it is more attractive for the private actor to engage in integrative partnerships. In this way, contractual hazards and costs of the relationship are reduced and potential of the revenue in political markets is increased.

Table 8: Partnership rationales for the level of public involvement

Partnership rationale		Autonomous	Integrative
Reducing environmental uncertainty	Political uncertainty	+	
	Market/technological uncertainty		+
Compensating for market externalities	Positive market externalities		+
Accessing/exploiting idiosyncratic resources	Public property-based resources	+	
	Public knowledge-based resources		+
	Private knowledge-based resources	+	
	Private political resources and capabilities		+

Besides creating value, Kivleniece & Quelin (2012) argue that governance is also key mechanism in distributing and capturing the value after it is created. Value capturing can be threatened if the governance structure does not fit the partnership requirements. Opportunism of the public sector affects the value captured by the private actor the most in integrative governance structures.

### 2.4.3 THE LEVEL OF ADMINISTRATIVE CONTROL

The level of administrative control is based on the continuum that is developed by Williamson (2002) for *private ordering*. Private ordering refers to “efforts by the immediate parties to a transaction to align incentives and to craft governance structures that are better attuned to their exchange needs” (Williamson, 2002, p. 172). Purpose of private ordering is lowering transaction costs and mitigation of contractual hazard (Williamson, 2002). Transaction costs are costs that are formed by searching for information, negotiating, enforcing and monitoring a contract (Williamson, 2002). They are caused by effects of human behaviour and attributes of the transaction. These effects are explained below and summarized in figure 2.

The effects of human behaviour can be explained by two behavioural assumptions. First, opportunism explains that individuals act out of self-interest. Second, bounded rationality of individuals entails that individuals intend to act rational, but that is occurs only limited (Williamson, 2002). Consequently, “all complex contracts are unavoidable incomplete” (Williamson, 2002, p. 174). The partners that are involved in the contract must find ways to adapt to unexpected conflicts that can arise due to gaps, errors, and omissions in the contract. The combination of bounded rationality and opportunism makes that actors need to respond to unforeseen issues, but in a strategic way. Private ordering - the establishment of supportive governance structures – help to mitigate the costs that come with contractual problems (Williamson, 2002).

The attributes of transaction defined by Williamson (2002) that influence the transaction costs are asset specificity (or mutual dependency) and uncertainty. Asset specificity can take various forms – physical, human, site, dedicated, brand name (Williamson, 2002). Asset specificity means that assets lose their value when they get outside of a given context (Mayer & Salomon, 2006). Uncertainty refers to the disturbances or potential undesirable adaptations of a transaction (Williamson, 2002). Williamson (2002) also mentions frequency as a transactional condition, which is negatively related to transaction costs because of reputation effects.

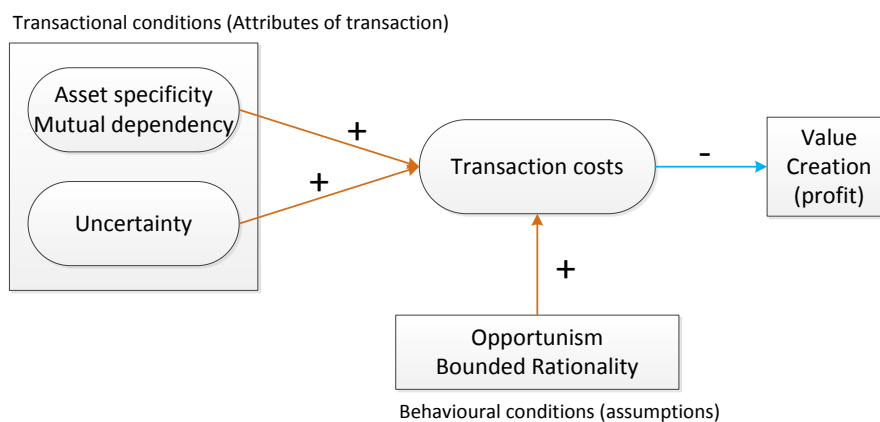


Figure 2: Transaction costs model (Oxley, 1997; Williamson, 2002).

A higher threat of contractual hazards leads to a preference for hierarchical governance modes according to transaction cost economics (Oxley, 1997; Williamson, 2002). The contractual hazards that will be used in this paper are asset specificity, uncertainty, and appropriability. These conditions and their effect on the optimal mode of governance are explained below and summarized in table 9.

**Asset specificity** – There is a relationship between the level of asset specificity and the costs of organizing transactions in markets, hybrids, or hierarchies (Williamson, 2002). Figure 3 shows the transaction costs for markets ( $M$ ), hybrids ( $X$ ), and hierarchies ( $H$ ) as governance mode as a function of asset specificity ( $k$ ). When there is no asset specificity (at  $k=0$ ), the costs of markets are the lowest. Hierarchies are most costly due to bureaucratic expenses. However, if asset specificity increases, the need for cooperative adaptation increases as well (*ceteris paribus*) and first hybrids and then hierarchies become more preferred governance mode (Riordan & Williamson, 1985; cited in Williamson, 2002).

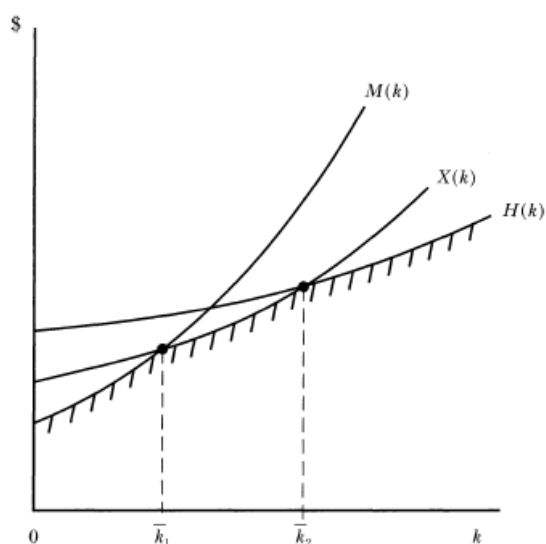


Figure 3: The comparative costs of governance (Source: Williamson, 2002)

**Uncertainty** – The higher the level of uncertainty, the higher the transaction costs. High levels of uncertainty also lead to greater needs for cooperative adaptation (Williamson, 2002).

**Appropriability** – Hazards that are related to weak property rights are called appropriability hazards (Oxley, 1997). These hazards expose valuable intellectual property – such as information or technology – to expropriation (Mayer & Salomon, 2006). In creating or exploiting technology, appropriability hazards can be high, because of difficulties in specifying property rights related to a technology in a contract or difficulties in monitoring activities of contracting partners because of a wide scope of activities (Oxley, 1997). In that case, hierarchy is preferred over market as mode of governance (Oxley, 1997).

**Alternative safeguards** – The greater the threat from these hazards, the more hierarchy is preferred over market as governance structure. Moreover, less hierarchical governance structures will be attractive if there are alternative safeguards that can act as substitutes for formal governance modes (Oxley, 1997).



Table 9: Partnership rationales for the level of administrative support

Partnership rationale		Market	Hierarchy
Contractual hazards	Asset specificity		+
	Uncertainty		+
	Appropriability		+
Alternative safeguards		+	

## 2.5 INSTITUTIONAL ENTREPRENEURSHIP

This section discusses the concept of institutional entrepreneurship, which explains how individual actors as institutional entrepreneurs change the institutional environment. Battilana et al. (2009) give the following definition of the institutional entrepreneur: “*Institutional entrepreneurs, whether organizations or individuals, are agents who initiate, and actively participate in the implementation of, changes that diverge from existing institutions*” (p. 72). This definition involves two conditions that must be fulfilled to be regarded as institutional entrepreneur. First, the changes must be divergent – or breaking with the current institutional environment – and second, the actors must actively mobilise resources to implement change. Moreover, it does not matter whether the changes were the initial intent, whether they were implemented successfully, and they can be internal of an organization or in a broader context (Battilana et al., 2009). Moreover, where an entrepreneur is seen as agent that creates new business models, an institutional entrepreneur creates new business models for the institutional environment rather than new venture creation (Battilana et al., 2009).

Pacheco et al. (2010) define the institutional entrepreneur as “*self-interested change agent who commands and mobilizes resources to alter or create institutional structures*”(p. 975) and differentiates between two different theoretical streams: institutional theory and institutional economics. First, institutional theory defines the institutional entrepreneur as a change agent and focusses mainly on informal and social embedded institutions (Pacheco et al., 2010). Institutional economics emphasizes that the bounded rational individual is driven by economic self-interest to change the rules that determine economic behaviour and reward (Anderson & Hill, 1975, 2002; cited in Pacheco et al., 2010). Both perspectives underline “*the need to put human action and agency in the center of economic and social systems*” (Pacheco et al., 2010, p. 978). Although both streams have elements in common, this research focusses mainly on the institutional economics perspective because of the emphasis on the economic motivation of the institutional entrepreneur and the focus on formal institutions. Therefore, this stream is considered most relevant in understanding the process of designing a multi-stakeholder partnership, promoted and facilitated by private actors such as the Barilla Sustainable Farming Initiative.

Moreover, both streams move away from the traditional assumption that institutions are ‘given’ and the inability to address human action by the neoclassical economic approach (Pacheco et al., 2010) and reintroduces the concepts of agency, interests, and power into institutional analyses of organizations (Garud et al., 2007). The agency of individuals or organizations to change the institutional environment holds *the paradox of embedded agency*, which explains the tension between agency and institutions (or structure). Individuals and organizations have the rational choice of breaking with existing institutions, but at the same time structural determinism involves that existing institutions determine the beliefs and actions of these individuals and organizations (Battilana et al., 2009; Garud et al., 2007). Theories that underline structure over agency result in

causal deterministic models and struggle to deal with change (Garud et al., 2007). In contrast, theories that prefer agency over structure are criticized for being ahistorical, decontextualized and tend to exclude consequences of actions (Garud et al., 2007). To solve the paradox of embedded agency, new theoretical perspectives combine agency and structure by defining structure as *“both the medium and outcome of social practices”* (Garud et al., 2007, p. 961). According to this definition, structures do not only form constraints for agency, but can also provide a platform that facilitates entrepreneurial activities.

Moreover, theories of institutional entrepreneurship explain enablers and mechanisms of change. First, enablers of institutional change described by Pacheco et al. (2010) involve: changes in demand and supply in the market, technological change, lowering of transaction costs, and cultural or ideological ideas. In addition, Battilana et al. (2009) mention field conditions (such as degree of heterogeneity and degree of institutionalization), and past and present social positions in multiple organizational fields (or contact with others in different organizational fields) as enablers of institutional entrepreneurship. Second, mechanisms of change are the importance of collective action and the resources and strategies for institutional change (Pacheco et al., 2010). The divergent change implementation process described by Battilana et al. (2009) involves creation of a vision for divergent change and mobilization of allies. Institutional entrepreneurs must be skilled in framing the new vision because it must justify replacement of the taken-for-granted practices by a new strategy. Activities to mobilize allies include the use of discourse and skills in communication to convince other actors, and mobilization of resources. Different resources that are distinguished here are financial resources and resources related to social position, such as formal authority (decision making right) and social capital (social relations and support) (Battilana et al., 2009).

Furthermore, in line with the institutional economics perspective, there are different levels at which institutions can be conceptualized. Institutions are defined as *“the humanly devised constraints that shape human interaction”* and they *“reduce uncertainty by providing a structure to everyday life”* (North, 1990, p. 3). Williamson (2000) developed a framework with four levels of social analysis (figure 4). The solid arrows in between two levels stand for constraints that the upper level imposes on the level direct below. The reverse dashed arrows stand for feedback that flows from lower to upper levels. The different levels are explained as follows. The top level represents the social embeddedness level, which consists of informal institutions such as norms, customs, mores, and traditions. Most institutional economists take level one as given, and changes at this level take place very slowly over centuries or even millennia. The second level is the institutional environment, where the formal rules – constitution, laws, and property rights – are set. Changes on this level only occur after decades or ages. The third level consists of the institutions of governance, and contracts in particular. Governance in this level aims to create *order*, mitigate *conflict*, and realize *mutual gains* (Williamson, 2000). The reorganizations of governance structures, or contract renewal, occurs over a period of a year to a decade. The institutional entrepreneur operates in level three to design contracts, organize transactions, and reduce costs (Eggertsson, 1996; cited in Pacheco et al., 2010). Last, the fourth level is the level of resource allocation and employment. Optimization of prices, quantities and incentive alignment are key aspects and these can change continuously.

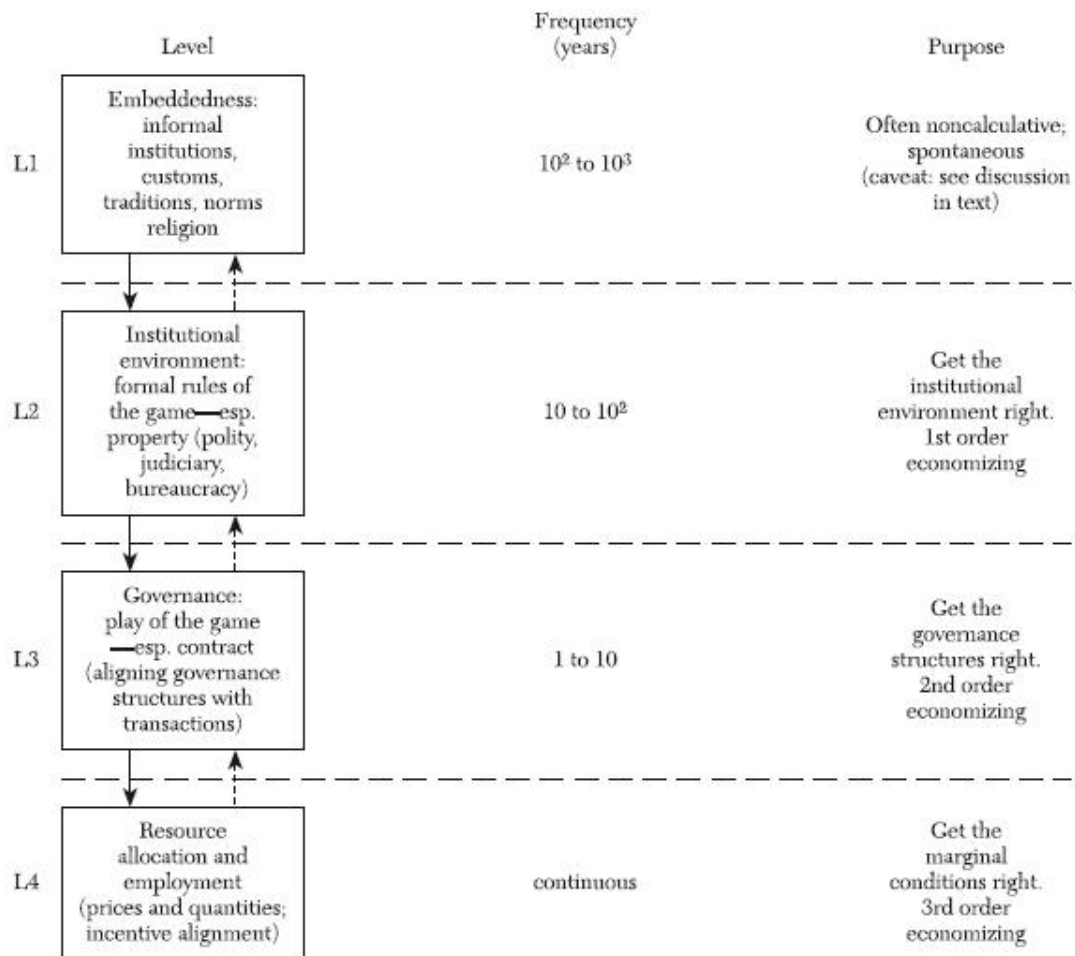


Figure 4: Four levels of social analysis (Source: Williamson, 2000)

As discussed in section 2.2, partnerships require a new form of governance, which takes place in level three of the framework developed by Williamson. Partnerships between different institutional levels, or between stakeholders that operate at different levels, can be challenging for the management of the environment as a whole system rather than separate isolated problems (Berkes, 2006 cited in Prager, 2010). Also De Schepper et al. (2014) state that when more institutional levels are involved in a public private partnership, it leads to more opportunity for conflicts. However, threat of these conflicts can be reduced by early or ex-ante stakeholder involvement (De Schepper et al., 2014).

## 2.6 PARTNERSHIP DESIGN

This section discusses the process of designing a MSP. The process of designing an MSP contains overlapping elements with the concept of institutional entrepreneurship in terms of definition, enablers, and mechanisms of change. Collaboration in a MSP requires new forms of governance, meaning that it is a part of the process of designing an MSP to establish new institutional arrangements. Brouwer et al. (2015) developed a MSP guide in which they explain a process model to design a MSP, consisting of four phases: (1) Initiating, (2) Adaptive planning, (3) Collaborative planning, and (4) Reflective monitoring. Figure 5 shows the four steps of the process model.

Although every partnership is unique and no design process is the same, this model provides a first understanding for the design process and can serve as a checklist to make sure nothing is overlooked. As the black arrows indicate, the process is iterative, meaning the phases are adjusted constantly during the process.

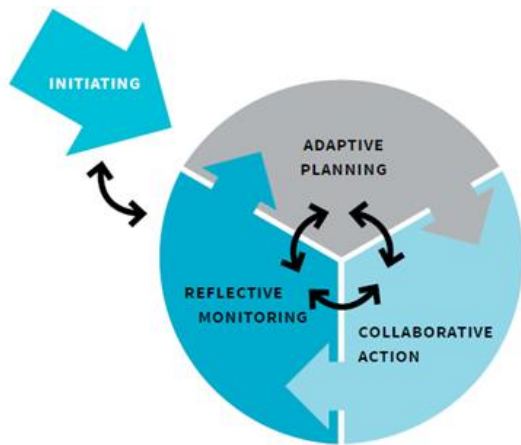


Figure 5: The process model of MSP design (Source: Brouwer et al., 2015)

The first phase is *initiating* the partnership. Already during the first phase of the design process, characteristics of the institutional entrepreneur become visible. This phase involves the start of the initiative so champions will take the lead in initiating and organizing the partnership and must actively involve stakeholders so build support and trust. Moreover, interests and motivations are outlined that can be related to the enablers of institutional entrepreneurship mentioned above. This phase consists of the following steps.

- **Clarify reasons for the MSP** so stakeholders can be interested and motivated. The reasons can change over time.
- **Undertake initial situation analysis** to understand the context: stakeholders, issues, institutions, power, and politics.
- **Mobilise champions** that take the lead in initiating and organizing the partnership. It is important that these champions are respected and that all stakeholder groups support the initiative.
- **Establish an interim steering body**
- **Build stakeholder support** by means of early involvement or consulting, informal discussions, regular updates, and involvement of representatives of each stakeholder group. Building stakeholder support enlarges trust among stakeholders.
- **Establish scope and mandate** that especially contain a clear definition of the mandate, authority, and decision making powers of the MSP.
- **Outline the process** containing expectations of the different stakeholders, planned activities, time commitment required from the different stakeholders.

The second phase is *adaptive planning*, which entails that plans are developed based on the current situation and that these can be adjusted in case of changes. Important is that this planning should be treated as responsive and not prescriptive. During this phase, the institutional entrepreneur continues efforts to mobilise allies and builds stakeholder support. Also in this phase the reasons and expectations are translated further into specific strategies and visions,

which are also mentioned as mechanisms of change in the process of institutional entrepreneurship. Capacities and resources are also collected here for the strategies. The adaptive planning phase consists of the following steps.

- **Deepen understanding and trust** to increase willingness to cooperate. Agreement is not necessarily the aim, but it is important that stakeholders at least understand each other's views, values, perspectives, and interests.
- **Identify issues and opportunities** that the different stakeholders experience.
- **Generate visions for the future** to find shared ambitions.
- **Examine future scenarios** around complexities or uncertainties that are difficult to predict. Possible trends, behaviours, and futures can be considered.
- **Agree on strategies for change** such as a plan for monitoring and revisiting the strategy.
- **Identify actions and responsibilities** so these are clear and to make sure that the stakeholders have the resources and capacity to fulfil them.
- **Communicate outcomes** and decisions constantly to keep support,

The third phase is *collaborative action*. In this phase, the ideas that are developed in the previous phase are put into action. This is an important phase, because it happens often that MSPs fail to put ideas into practice. During this phase the resources and support are secured, and the governance structure is established, meaning that a new institutional environment is put into place. The steps that are part of the collaborative action phase are explained below.

- **Develop detailed action plans** containing a clear strategy about who is doing what, when, where, and how. The more stakeholders are involved, the more important this gets.
- **Secure resources and support** such as money, time, equipment, and expertise to implement the strategy and action plans that are developed.
- **Develop capacities for action** through for example participatory learning tools. Gaining knowledge, skills, and networks are reasons for stakeholders to join in a MSP. Teams should be established with stakeholders that complement each other.
- **Establish management structures and governance structures** of the MSP
- **Manage implementation**
- **Maintain stakeholder commitment** in case stakeholders leave, new stakeholders enter the MSP, and to make sure that stakeholders that stay maintain or (re)build commitment.

The fourth phase is *reflective monitoring* and is embedded in the other three phases of the process model for designing an MSP. Reflective monitoring occurs not only at the end of a project, but is needed throughout the other three phases.

- **Create a learning culture and environment** by reflecting on successes and failures on a regular basis.
- **Define success criteria and indicators** in order for the stakeholders to determine what they need to know to make decisions.
- **Develop and implement monitoring mechanisms** like a shared strategy for data collection and processing, analysis, reflection, decision-making, communication, and reporting.
- **Review progress and generate lessons** like impact, relevance, sustainability, effectiveness and efficiency.
- **Use lessons for improvement**

## 2.7 THEORETICAL FRAMEWORK

This section discusses the theoretical framework that is developed from the literature study in section 2.1 to 2.6. The theoretical framework combines the concepts of the design process facilitated by institutional entrepreneurs with the study on governance structures, which are established in the third phase of the design process. In addition, the rationales of the three governance dimensions are included, but not linked to a particular phase since they evolve throughout the design process. This section answers the sub-questions (1.1), (1.2), and (2.2) based on the literature study. Then, a schematic representation of the theoretical framework is presented, which will form the basis of the empirical study of the Barilla Sustainable Farming Initiative.

### 2.7.1 GOVERNANCE ATTRIBUTES AND DIMENSIONS

This paragraph answers sub-question (1.1) of the first general research question, which is *“What are attributes and dimensions characterizing MSP governance structures?”*

MSPs have the potential to solve complex issues, maximise resources and expertise and involve sharing of costs and risk between the stakeholders. Preconditions are overlapping agendas and motivations, trust (based on reputations, past experiences, or previous relations between the stakeholders), and the allocation of responsibility and authority. Also preliminary work before actually establishing the MSP is recommended on relations between the stakeholders, conflict issues, or funding issues. Appropriate stakeholder management processes are crucial for the success of a MSP.

Partnerships imply new forms of governance. The governance mechanisms in place are formed by interaction of all actors that are involved in the supply network, and not just by individual firms. MSPs can vary by many different attributes, such as function of different parties (design, build, rehabilitate, finance, maintain, operate), type of assets involved, payment mechanisms, conflict resolution, duration, social elements (trust, adjustment, moral responsibility). It is important to note that ‘ideal types’ do not exist in reality. In other words, all governance modes are hybrids and cannot exist completely isolated from the others. Moreover, governance modes are not static, but change over time and evolve with different stages in the lifecycle of a MSP.

Out of rich descriptions in literature on ideal types of governance modes and hybrids, three dimensions are selected that complement each other and therefore form a comprehensive overview for governance modes: (1) the level of integration, (2) the level of public involvement (3) the level of administrative control. First, the level of integration describes the intensity of the connections between the stakeholders and differentiates the categories cooperation, coordination, and collaboration. Attributes of this dimension are time taken to establish, goals, actors, sharing of power, linkages between members, risk, and reward. Second, the level of public involvement describes the role of the public party in the MSP and differentiates the two categories autonomous and integrative governance. Attributes of the public private dimension are division of operational and coordination tasks, revenue model, and other governance features such as distribution of authority, property rights and incentive regime. Third, the level of administrative support describes the administrative control of the MSP and distinguishes between market, hybrid, and hierarchy. Attributes are instruments of coordination such as price or authority, performance attributes, such as spontaneous responding to the market or knowledge and administration, and dispute settlement according to court or internal dispute resolution mechanisms.

### 2.7.2 RATIONALES

This paragraph answers sub-question (1.2) of the first general research question, which is *“What are rationales that influence the attributes and dimensions of governance structures when designing a MSP?”*

Rationales are formulated according to the three dimensions that are selected in section 2.3. First, rationales for the level of integration are complexity and requirements to solve the issue at hand. The higher the complexity of the issue, and the more it cuts across governments and agencies, the more the MSP tends to move towards collaboration. Regarding the requirements to solve the issue – varying from information sharing, to alignment of activities across agencies, to synergizing and boundaries that disappear to create something new – the governance mode also shifts from cooperation to towards collaboration. Second, the level of public involvement is influenced by reduction of environmental uncertainty, compensation of market externalities, and access to idiosyncratic resources. Here, the involvement of the public party is explained in terms of roles and responsibilities. Third, the rationales of the level of administrative control are the existence of contractual hazards such as uncertainty, asset specificity, and appropriability. If case of higher contractual hazards, more hierarchical governance modes are preferred. However, alternative safeguards increase the preference for market modes.

### 2.7.3 THE DESIGN PROCESS

This paragraph answers sub-question (2.1) of the second general research question, which is *“what is the process of designing a MSP?”*

The process model for designing a MSP consists of four phases: initiating, adaptive planning, collaborative action, and reflective monitoring. Although every partnership is unique and no design process is the same, this process model provides some structure or direction and can be used as a checklist because it outlines important considerations for effective collaboration. Moreover, the four phases are iterative, meaning that they are adjusted constantly during the process. The role of an institutional entrepreneur becomes visible in the first initiating phase, because during this phase the initiative is started and champions are mobilised that will take the lead in initiating and organizing the partnership. Throughout the later phases, they will actively mobilise actors and resources to implement institutional change in by reshaping the governance structure, which takes place in level three of Williamson’s four levels of social analysis.

The initiating phase is most relevant for this research because it is the current phase of the Barilla Sustainable Farming Initiative, which will be introduced in chapter 3. Steps in the initiating phase are clarification of reason for the MSP, and an analysis of the initial situation to understand the context in terms of stakeholders, issues, institutions, power, and politics. Then, respected and legitimate champions are mobilized that take the lead and a steering body is established. In addition, stakeholder support must be build and scope, mandate, and an outline of the process is established.

In the adaptive planning phase, issues and opportunities are developed and strategies, actions and responsibilities are defined. Then, during the collaborative action phase, detailed action plans are developed, resources are secured, and the strategies are implemented. During this phase, the governance structures are put in place. Last, the reflective monitoring phase exists of evaluation and learning and is integrated in the other three phases.



#### *2.7.4 THE THEORETICAL FRAMEWORK*

This paragraph provides an overview of the theoretical concepts explained in the literature study. The theories are combined in a theoretical framework, which is used as a foundation for the empirical analysis. Figure 6 shows the theoretical framework.

The theoretical framework shows the design process of MSPs, initiated by private actors as institutional entrepreneurs, including the establishment of governance structures with related rationales. The theoretical framework indicates the four phases of the design process for MSPs. The steps of the initiating phase are pointed out in the framework because they form the basis of the empirical analysis. Concepts of institutional entrepreneurship are integrated in the design process by including initiatives, mobilization of champions, and active mobilization of allies and resources. Change of the institutional environment occurs in the third phase of the design process, where the governance structures are established. The three governance dimensions – the level of integration, the level of public involvement, and the level of administrative control – are indicated and each dimension is linked to the related rationales. The rationales are not linked to a specific phase of the design process because they evolve throughout the process. The initiating phase does not directly determine what type of governance structure will be established, but that there is a process in between. However, the initiating phase can provide a first understanding about the rationales since they are evolving from the initiating phase and the phases of the process model are not strictly separated and sequential.



The design process of MSPs initiated by private actors as institutional entrepreneurs

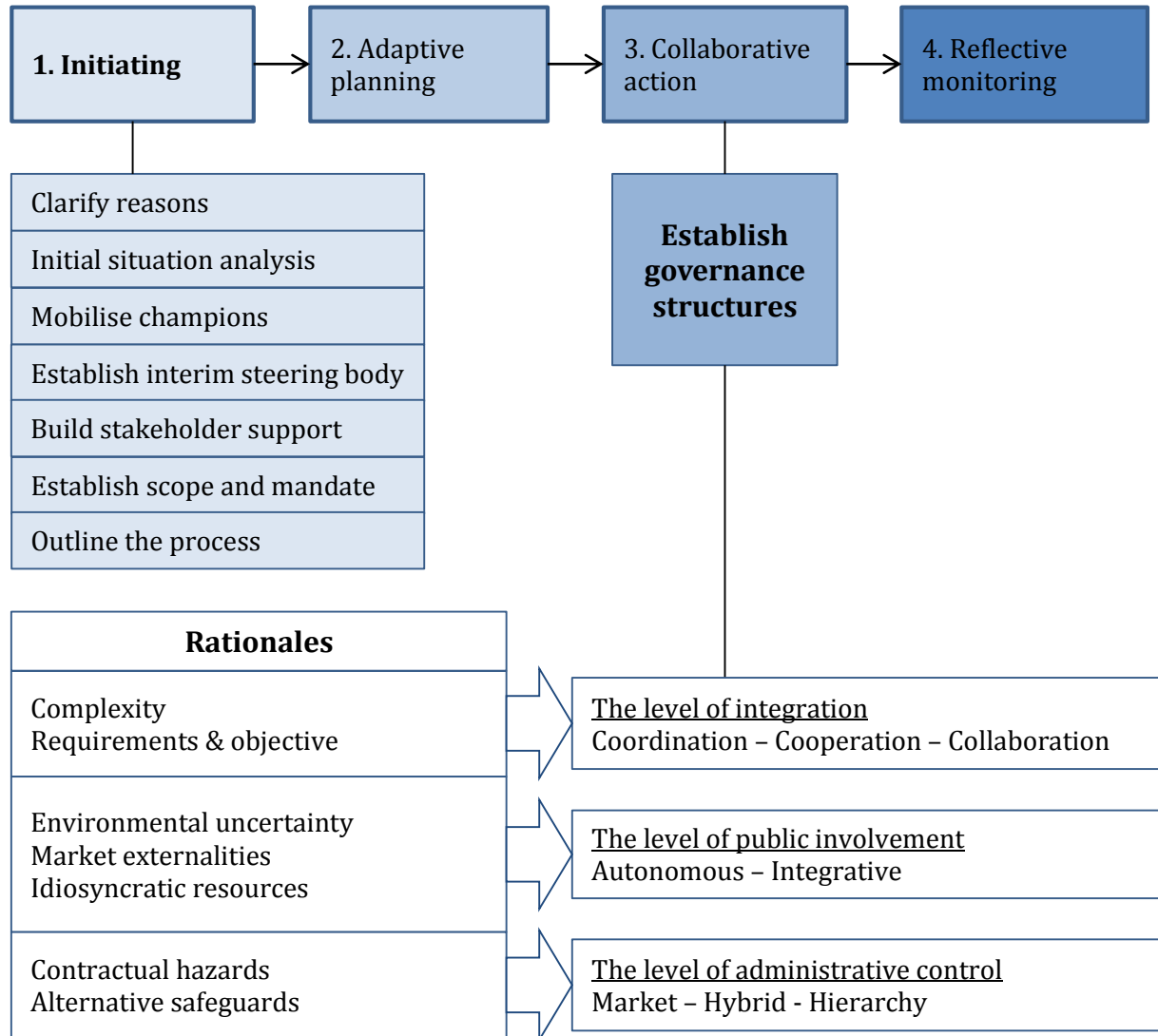


Figure 6: The theoretical framework

### 3. CASE DESCRIPTION: THE SUSTAINABLE FARMING INITIATIVE

The adoption of MSPs is a recent practice in Italy and was first introduced in the Italian legislation in 1998 through the Merloni law (Rossi & Civitillo, 2014). Here, MSPs target mainly local and small-scale projects such as cemeteries, local stadium for swimming competition, or a harbour for private ships (Rossi & Civitillo, 2014). The main areas in which MSPs are active are Lombardia, Veneto, Campania and Toscana (Rossi & Civitillo, 2014). Functioning of MSPs can be challenging because there is a low level of interaction between the public and private sector in Italy (Rossi & Civitillo, 2014).

The Barilla Group operates in the market for pasta and ready-made pasta sauces in Europe, bakery products in Italy, and crisp breads in Scandinavia (BCFN, 2015a). Barilla was founded in 1877 in Parma, where the headquarters are located nowadays. The most important raw materials for Barilla are durum wheat, common wheat, rye, tomatoes, eggs and vegetable oils (BCFN, 2015a). The Barilla Group performs controls continuously throughout the whole supply chain. For example, Barilla is a voluntary participant in the Global Food Safety Initiative (GFSI) meaning that suppliers are checked according to safety standards developed by GFSI with the aim of safety management in the supply chains (BCFN, 2015a).

The Barilla group aims to *“double the business, while continuously reducing the footprint on the planet and promoting wholesome and joyful food habits”* (BCFN, 2015a, p.20). The philosophy of Barilla for doing business is defined as *“Good for You, Good for the Planet”* and focusses on three dimensions (BCFN, 2015a). First, *“Good for You”* stands for quality, safe, and nutritionally balanced production. The second dimension is called *“Good for the Planet”* and refers to sustainable agricultural production and supply chains. The third dimension is *“Good for the Communities”* and aims for inclusion of people, access to food and education, equality and diversity. Moreover, Barilla uses the Life Cycle Assessment (LCA) method to evaluate the impact of the supply chain, which analyses every phase from farming to consumption including even cooking (BCFN, 2015b). The environmental indicators that are used in this method are the carbon footprint, water footprint, and ecological footprint. The LCA shows that the impact on the planet is the highest during the cultivation phase of raw materials, and the moment that the products are cooked (BCFN, 2015a).

One of the initiatives of the *“Good for the Planet”* philosophy is the development of sustainable cultivation projects. This means that greenhouse gas emissions and water consumption are lowered during the production processes. In 2013, Barilla already introduced a sustainable agriculture initiative by establishing horizontal agreements between three of its main suppliers: Co.Pro.B. for sugar beet, Cereal Docks for oilseeds, and Casalasco Tomato Consortium for tomato (BCFN, 2015a). These horizontal agreements entail that the supply chains become integrated by means of a crop rotation system (Barilla, 2014). Barilla’s sustainable agricultural practises have demonstrated that crop rotation has a large potential in making cultivation phases of raw materials more sustainable. The primary aim of the horizontal agreement is *“to ensure outlets to all crops in rotation”*, which supports farmers to participate in development of multi-year sustainable crop rotation systems that has a positive impact on the environment and the social-economic performance of the farmers (Pancino et al., 2015). Barilla experiments with this innovation in the North of Italy in the regions Lombardia, Veneto, and Emilia Romagna (Pancino et al., 2015). Figure 7 shows these regions marked in blue in the map of Italy.



Figure 7: Regions of the Sustainable Farming Initiative

The advantages of the sustainable cultivation project can be listed in relation to the three pillars of sustainability: economic, environmental, and social (table 10). Research performed by Barilla in 2010 showed that rotation of durum wheat with dicotyledons – whose members contain two seed leaves - (such as e.g. soy-bean, sunflower, rapeseed, tomato, sugar beets, alfalfa, grain legumes and grass) is more sustainable than rotations solitary with cereals or monoculture (Ruini et al., 2013.) The Sustainable Durum Wheat project of Barilla shows the possibility to reduce the greenhouse gases up to 30% and to increase production yield with 20%, resulting in an increase of profits for farmers (BCFN, 2015a).

Table 10: Individual and collective benefits (Source: Pancino et al., 2015).

Economic	Environmental	Social
<ul style="list-style-type: none"> <li>• Reduction of production costs</li> <li>• Improve management and organization</li> <li>• Longer term planned production</li> <li>• Improved logistics</li> </ul>	<ul style="list-style-type: none"> <li>• Preservation and improvement of soil fertility</li> <li>• Reduction of soil erosion</li> <li>• Limit hydrogeological risk</li> <li>• Reduction of inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Guarantee of continuity in farming activities</li> <li>• Confidence among operators of the value chain</li> <li>• Better environment and ecosystem services</li> <li>• Common Agricultural Policy (CAP) respect</li> </ul>

The Sustainable Durum Wheat Project is a project of Barilla in cooperation with HORTA, a spin-off of the Piacenza Catholic University, that aims to develop sustainable agricultural systems that capture high levels of safety and quality (BCFN, 2015a). This project has developed two tools for farmers that providing assistance on optimal cultivation practices (BCFN, 2015a). The first tool is the “*Barilla Handbook for Sustainable Cultivation of Quality Durum Wheat in Italy*”, which contains 10 rules to make production of durum wheat more sustainable and more efficient by improving crop yields, quality, and efficient use of fertilizer (Barilla, 2012). The Handbook also encourages

the adoption of crop rotation techniques. The second tool is “*Granodure.net*”, which is a tool that helps farmers in making decisions on how to improve their agricultural practices by giving advice on production techniques. These two tools are freely available to farmers and producers’ organization that work together with Barilla.

Figure 8 shows a schematic representation of Barilla with its suppliers and the other stakeholders involved in the Sustainable Farming Initiative. Horizontal agreements, or supplier-supplier relations, extent the concept of a supply chain towards a supply network (Johnson et al., 2008; Lamming et al., 2000, cited in Wilhelm, 2011). Where supply chains are seen as “*connected strings of organizations involved in the production and supply of a particular product or product family*” (Johnsen et al., 2008; cited in Wilhelm, 2011, p. 664). Supplier-supplier relationships within a supply network can be competitive, or cooperative, or there is the possibility of lack of ties. In these relations, cooperation and competition can exists next to each other, but one is likely to be stronger (Wilhelm, 2011). Co.Pro.B., Cereal Docks and Casalasco Tomato Consortium are suppliers with cooperative ties since they provide Barilla with different crops. The aim of the horizontal agreement is to propose a contract to the farmers to engage in the crop rotation system.

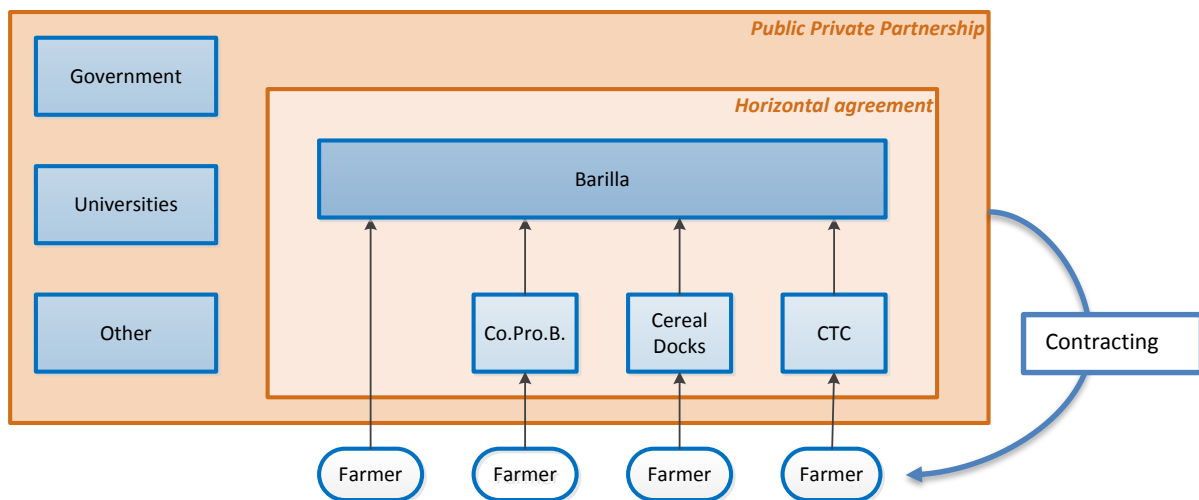


Figure 8: The supply network of Barilla.

In this example, Barilla can be seen as institutional entrepreneur that facilitates and takes the lead in changing the institutional environment. Designing an MSP takes place in the third level of Williamson’s framework of social analysis, but potentially also connects to level two if new agricultural policies are developed due to collaboration with the local authority in this initiative. In addition, the contracts are influenced by incentives from level four such as allocation mechanisms and prices.

## 4. METHODOLOGY

This chapter will discuss the methodology of the empirical study. First, section 4.1 will describe the research strategy that is used to collect the relevant data. Then section 4.2 will explain the methods of data collection. Section 4.3 and 4.4 will discuss the design of the interviews and the design exercise respectively. Then, section 4.5 will explain how the data is analysed after it has been collected and lastly, section 4.6 will discuss the quality assessment of this research in terms of reliability, validity, and ethical considerations.

### 4.1 RESEARCH STRATEGY

This research aims to understand the process of designing a multi-stakeholder partnership in the adoption and diffusion of sustainable innovations in food value chains, promoted and facilitated by private actors. A theoretical framework is developed in the literature study in chapter 2, which forms the basis for the empirical analysis. The Barilla Sustainable Farming Initiative is currently in the first phase of designing an MSP, therefore the initiating phase will be the main focus of the empirical analysis. The governance structures are established in the third phase of the design process, so this research will only reflect on the rationales that are found during the initiating phase. The research strategy is at the borderline of action research and participative case study analysis.

First, a characteristic of action research is that the participants – or so called ‘practitioners’ – work together with the researcher throughout the analysis, design, and implementation processes of research ideas to solve real word problems. Therefore, action research often consists of multiple interaction moments between the researcher and the participants, and uses as much participatory methods as possible in its experimental design (Harrison & Callan, 2013). Where case studies analyse phenomena in their natural environment and the researcher is an independent observer, in action research the researcher also fulfils a role in the process of solving real world problems (Harrison & Callan, 2013). The moments of interaction allowing for feedback in this research involve (1) input for development of the research questions, (2) interviews, (3) confirmation of the interview transcripts, (4) preparation of a design exercise, and (5) a design exercise in a multi-stakeholder meeting. Moreover, in action research the research process is modified after every stage in the research (Harrison & Callon, 2013). Here, the final design exercise evolved from the results of the literature study, the round of interviews, and the other moments of interaction. In addition, Berg (2004) mentions two primary tasks regarding action research. First, the information and knowledge that is gained with the research is directly useful for a group of people. Second, the research aims to “enlighten” and “empower” the persons in the group (Berg, 2004, p. 197). In other words, the research must motivate the people to take action and use the information that is gathered in practice. This research motivates the different stakeholders that are involved in the MSP to take action to design and negotiate a MSP and a set of contracts.

Verschuren and Doorewaard (2010) define a case study as a “*a type of research during which the researcher tries to gain a profound insight into one or several objects or processes that are restricted in time and space*”. Case studies are generally selected as methods when the research addresses a descriptive (*what?*) or explanatory question (*how/why?*), when there is no or limit control over behavioural events, and when complex phenomena are studied in depth in real-life context (Yin, 2013). However, a participative case study entails that “*a particular subject, group of subjects or organization is observed by the researcher, who is one participant in the process being observed. The researcher is to some degree exercising control over some intervening variables and is a stakeholder*

*in the outcome of the process*” (Baskerville, 1997, p. 6). In contrast to the non-participatory definition provided by Yin (2010), the definition of the participatory case study provided by Baskerville (1997) also entails interaction and collaboration between the researcher and the subject as in action research. However, a difference between action research and participative case study analysis is that action research involves tighter collaboration, is stricter, more difficult, and takes more time than participative case studies (Baskerville, 1997). Moreover, the role of the researcher is different because the research process is more iterative in action research (Baskerville, 1997). This research is at the borderline of action research and participative case study analysis because there are multiple moments of interaction and participatory methods, but these are limited due to time restrictions. Moreover, in action research contains collaboration between the participants and the researcher throughout the analysis, design, and implementation processes. This research provides mainly insights in the first phase of the design process. Although it also involves a design exercise, this collaboration should continue in the next phases.

## 4.2 DATA COLLECTION

Action research is described as a process that evolves throughout multiple stages. For example, first the *diagnostic stage* involves an analysis of the social situation, followed by the *therapeutic stage*, which involves collaborative change experiments (Blum, 1955; cited in Baskerville, 1997). This research has three rounds of data collection: documentation, interviews and participant observations. Documentation and interviews are part of the *diagnostic stage*, and the participant observation during a design exercise with the stakeholders is part of the *therapeutic stage* of the research.

First, scientific articles and company documents are sources for the documentation. For the literature study, scientific articles and books are used. In addition, company documents are used for the case description. The theoretical framework that is developed in the literature study forms the basis for the empirical analysis and the interview questions.

Then, four interviews are conducted with representatives from the organizations Barilla, Casalasco, Co.Pro.B., and Cereal Docks. The interviews are semi-structured and consist of open questions. A standardized interview protocol is designed, but probes and follow up question are used. The interview protocol can be found in Appendix A. Each interviewee granted permission to make an audio-recording of the interview and also the transcripts were checked and validated by the interviewees. The transcripts of the interviews can be found in Appendix B. The interviews take approximately 45 minutes and are recorded, transcribed, and analysed. The interviewees are indicated in table 11 and they are selected because they are representatives of the organizations that are involved in the Barilla Sustainable Farming Initiative. In addition, the interviews 1, 3, and 4 are conducted in English; only interview 2 is translated by Elena Déco (a colleague of the interviewee) in Italian and English.

Table 11: Interviewees

Name	Organization	Function	Type
Cesare Ronchi	Barilla	Senior Purchasing Manager	Google Hangouts
Davide Rocca	Casalasco	Head of Technological Applications	Skype
Marco Marani	Co.Pro.B.	Director of Agriculture	Skype
Elena Valeri	Cereal Docks	Office and Quality Laboratory Analyst	Written

The third method for data collection in this research is participant observation. Participant observation means that the researcher as a role in the situation and helps to get an inside view of events (Yin, 2013). After the interviews, a multi-stakeholder meeting is organized in Parma in Italy. During this meeting, the first findings of the interviews are presented followed by an open discussion. Attendants of the meetings were representatives from Barilla, Casalasco, Co.Pro.B., Tuscia University of Viterbo, and Wageningen University. Table 12 shows the attendants of the multi-stakeholder meeting. The multi-stakeholder meeting contains an experimental design exercise with the stakeholders involved in the Sustainable Farming Initiative to take action in the first steps for designing the MSP and negotiate the first pilot contracts.

Table 12: Attendants of the multi-stakeholder meeting

Organization	Name
Barilla	Cesare Ronchi
	Michelle Zerbini
	Luca Ruini
	Leonarde Mirone
	Paloma Sancho Garcia
Casalasco	Davide Rocca
Co.Pro.B.	Marco Marani*
Wageningen University	Stefano Pascucci
	Anne Rappoldt
Tuscia University of Viterbo	Emanuelle Blasi
	Barbara Pancino

\*Marco Marani attended the meeting via skype

### 4.3 INTERVIEW DESIGN

The empirical analysis of this research focusses on the initiating phase of designing a MSP, because this is most relevant for the Sustainable Farming Initiative. The interviews provide a first understanding of the current situation and therefore focus on the first three steps of the initiating phase: clarify reasons, initial situation analysis, and mobilise champions. Table 13 shows how the questions are derived from the theoretical framework. The full interview protocol can be found in Appendix A and consists of four parts.

The first part is the introduction in which the researcher explains the context of the research and the goal of the interview. In addition, the structure and the expected duration of the interview are explained and the interviewee is asked permission to make an audio recording of the interview.

The second part of the interview aims to undertake an analysis of the current situation of the Barilla Sustainable Farming Initiative to understand the context of the initiative in terms of processes, involvement, motivations, interests and expectations of the different stakeholders. Questions for analysis of the current situation of an inter-organizational collaboration target for example roles of the different stakeholders, contributions, relationships, and reasons for collaboration (Butterfield et al., 2004).

The third part of the interview aims to understand preferences for structuring or organizing the collaboration. Therefore, the questions in the second part will target preferences about how to collaborate and in terms of management, structure, and coordination mechanisms.



Finally, the last sections contain a final statement is offered to the interviewee in which two options are presented: (1) to establish a multi-stakeholder partnership, or (2) to directly design a contract for the crop rotation system based on the existing horizontal agreements. Here the attitude of the stakeholders towards collaboration in an MSP is analysed.

To close the interview, the interviewee gets the final question if there is anything he or she would like to add to this interview, the interviewer thanks the interviewee for the answers and time and the follow up of the multi-stakeholder is explained.

Table 13: The interview design

Initiating a MSP		
<i>Concept</i>	<i>Variable</i>	<i>Questions</i>
Clarify Reasons	Shared objective <ul style="list-style-type: none"> <li>Reasons to join</li> </ul>	3, 9, 11
	Conflicting interests	10
	Expectations	15
Initial situation analysis	Potential stakeholders involved <ul style="list-style-type: none"> <li>Public party involvement</li> </ul>	19
	Relationships <ul style="list-style-type: none"> <li>Previous collaboration</li> <li>Involvement in this collaboration</li> <li>Dynamics between stakeholders</li> <li>Preferred relationship</li> </ul>	2, 4, 5, 6, 17
	Resources and expertise	7, 8
	Challenges	12, 22
	Strategies <ul style="list-style-type: none"> <li>Definitions successful collaboration</li> <li>What is required to solve the issue?</li> <li>Complexity of the issue</li> <li>Required investments</li> </ul>	13, 14, 20, 21
	Expectations	15
Mobilise champions	Relationships	2, 4, 5, 6, 17
	Coordination	18
Attitude towards MSP	Contracts based on existing agreements or MSP	23

#### 4.4 DESIGN EXERCISE

The design exercise builds upon the information that is gathered during the literature study and the interviews and consists of an experimental design exercise during a multi-stakeholder meeting. During the design exercise, the findings of the literature study and the interviews are presented, followed by an open discussion to confirm or complement the findings. Moreover, the design exercise focusses on the next steps of the initiating phase: establish an interim steering body, build stakeholder support, establish scope and mandate, and outline the process.

First, a pre-meeting was organized with the representatives of Wageningen University, the representatives from Tuscia University of Viterbo, and three representatives from Barilla to prepare the content of the experimental design exercise for the real multi-stakeholder meeting.

Second, during the multi-stakeholder meeting the interview results were presented followed by an open discussion on negotiating the MSP, a set of pilot contracts, and the next steps in the design process. Although the pre-meeting was in English, the multi-stakeholder meeting was held in Italian to make the negotiation more effective for the stakeholder.



## 4.5 METHODS OF ANALYSIS

For analysis of the collected data, the interviews are recorded and transcribed. The transcriptions are analysed by the software Atlas.ti, which is used to assign codes and code families to different quotations in the transcripts to organize the collected data. The information of the coded transcripts is presented as narratives intertwined with relevant quotations from the interviews, following the steps of the design process and the three governance dimensions with related rationales.

During the participant observation, data is collected in the form of notes and two researchers that attended the meeting provide a summary of the outcomes and agreements in English. The results of the multi-stakeholder meeting add to the results collected from the interviews. In addition to the new results of the design exercise, section 5 also explains when the multi-stakeholder meeting confirms or adds insights to the interview results.

## 4.6 QUALITY ASSESSMENT OF THE METHODOLOGY

Reliability, construct validity, data validity, external validity are criteria that determine the quality of action research. In addition, ethical considerations are discussed.

Reliability is problematic for action research because a research can never be repeated because of its unique nature (Baskerville, 1996). Therefore, reliability of consistency of observations is restricted for action research.

Construct validity of action research is increased by rigor methods and scientific discipline (Baskerville, 1996). Consistency throughout this research increases construct validity. First, a theoretical framework is established based on an extensive literature study, which form the basis for the empirical analysis. Moreover, three academic supervisors review this research, which also increases scientific discipline in the research.

Data validity can be a problem in action research because of interpretative nature of the data and because of inter-subjectivity of data collection (Baskerville, 1996). Subjectivity of the researcher can lower the data validity. Moreover, because of the participatory methods the researcher influences the subjects and vice versa. Data validity is increased in this research because the interviews are recorded so actual data can illustrate the assumptions that are made. Moreover, a systematic analysis of the data with the software Atlas.ti lowers subjectivity of the researcher. The transcripts of the interviews are validated because the interviewees checked the transcripts and the results were presented during the multi-stakeholder meeting where the interviewees had the opportunity to confirm or complement the findings again. However, data validity is lowered because the evidence of the multi-stakeholder meeting consists of a summary of the results instead of minutes or notes of the meeting.

External validity, or possibility for generalization of the results, is low for action research because working with a unique case allows for a limited number of observations (Baskerville, 1996). Therefore, generalization of theory and findings rely on further research.

Lastly, action research involves ethical considerations because the experimental nature of the research involves real people and may expose risks to the participants (Baskerville, 1996). Maintaining a rigorous approach lowers the risks of the participants.

## 5. RESULTS

This chapter will provide the results of the empirical study. First, section 5.1 will discuss the interview results for the first three steps of the initiating phase. Then, the outcome of the design exercise will be presented in section 5.2. Then, section 5.3 will discuss the further steps of the design process. Lastly, section 5.4 will reflect upon the rationales and recommended governance structure based on the analysis of the initiating phase.

### 5.1 INTERVIEW RESULTS

The results of the interviews are presented here. The interview round focusses on analysis of the first three steps of the initiating phase as presented in the theoretical framework: clarify reasons, initial situation analysis, and mobilisation of champions. The attitude of the stakeholder towards a MSP in general is also included by asking for preference for the option to design a MSP, or to develop contracts based on the existing horizontal agreements.

#### *Clarify Reasons*

The aim of the Sustainable Farming Initiative is to design contracts for the farmers. The horizontal agreement can be defined as “*mutual interest in supporting specific activities*” (Interview 1). However, the existing horizontal agreement is not binding and entails that the four stakeholders Barilla, Casalasco, Co.Pro.B., and Cereal Docks have their own program in sustainable production. It is the challenge to integrate and align these different programs into a crop rotation system. To do so the horizontal agreement is not sufficient and it is needed to establish a contract, that is explained as “*something that obliges you to respect the conditions*” (Interview 1). A contract is more specific and includes that a certain amount of a crop will be purchased by the organization and on the other side, that the farmer commits himself to produce a certain amount. Elements that should be included in the contract are for example quality, quantity, timing, and price:

*“Anything should be negotiated. There are no conditions that we can define since the beginning. The idea is to define quality, quantity, timing, and price for us [...] so instead of going into negotiation every time you want to buy or every time you want to sell, since the beginning we fix the rules which is useful for both of us”* (Interview 1).

The **shared objective** of the Barilla Sustainable Farming Initiative mentioned during the interviews is well aligned among the different stakeholders. The objective can be defined as a long-term program of four or five years for stabilization of prices and stabilization of the market. Stabilization is seen as a win-win situation for both farmers and manufacturers. First, the farmers will face less volatile prices in the market and engaging in the rotation system ensures outlet to the crops that they produce. For the industry, it involves an increase in quality and sustainability – such as Good Agricultural Practices (GAP) – standards. There is an increased demand from large clients such as Unilever and Nestlé for GAP manners and sustainability practices in agricultural production. Alignment of the objectives between the stakeholders is a strength of this collaboration. The win-win situation is explained the following:

*“For the 4-year programme you know from the beginning more or less how much production they can give you. From that perspective it is a win-win situation for farmers and manufacturers”* (Interview 1).

*“Most important interest is both for agriculture for farmers and for clients. Because the farmers can protect it soil and continue to have a good product to offer and on the other side the clients such as Barilla in this case can assure to have their standards achieved and this product can be economically friendly and certified global GAP which is a certification for applying good agricultural practices” (Interview 2).*

*“Basically we would like to transfer to the farmer to play into medium and long term approach instead of one year by one year playing. Now they survive one year and then another year but in this way it is not easy to do investment, even for the farmer but also for us” (Interview 3).*

*“Each organization may advise the farmer not only to take agronomic decisions in the short period in order to improve the productivity and health of crops but also to program the crop rotation in order to be able to participate in more trade agreements, in order to provide to the farmer greater security in the time” (Interview 4).*

There are more **benefits** of the rotation system pointed out by the stakeholders. First, production becomes more efficient. Better quality and fertility of the soil requires less input leading to lower production costs and improved quality of the products, and therefore an increase in competitiveness. Moreover, less volatility in the market reduces the economic risks for both the farmers and the manufacturers. This win-win situation only provides security for long-term production, because it provides on the one hand a stable income and on the other hand a stable supply. Stabilization means a change of the total free market system, but aims to find a right compromise in between a free market and a protected market:

*“This was different and then we went away to a total free market and now after 20 years we have to analyse what happened. Maybe it was not the right way to protect the total market but now we can assume that is it not very good to have a total free market. Because for instance the exchange rate of the value, the taxes, the crisis, the war wise situation can teach to us that it is better to find the average to each other” (Interview 3).*

Moreover, **conflicting interest** can cause problems because the stakeholders that are involved in this collaboration are indirect competitors. Even, negotiation of prices in a contract with multiple stakeholders is a conflict of interest per definition. Quality, quantity, timing, price must all be negotiated and *“everybody tries to get the most important earn”* (Interview 3). Especially prices are difficult to determine because it is very hard to estimate the market prices for 5 years.

### *Initial situation analysis*

The existing **relationships** between the different **stakeholders** can be described as follows. First, Barilla is in the centre of the collaboration. Barilla has strong ties with Casalasco and Co.Pro.B. since they are already existing suppliers of Barilla, and is only starting a relationship with Cereal Docks in this rotation initiative. However, between Casalasco, Co.Pro.B., and Cereal Docks there are no current or existing linkages. All four stakeholders have projects with the Tuscia University of Viterbo and the University of Bologna for agronomic research. Wageningen University is involved in the Barilla Sustainable Farming Initiative. Casalasco and Co.Pro.B. are cooperatives and have advantage of their strong relationships with farmers in efforts to engage them.

Moreover, the interviewees responded positively to potential **involvement of the public party**. The role of the public party that is foreseen by the interviewees is first for providing funding and support. Furthermore, the local administration will guarantee that all parties respect the contract, as this will be legally binding. The government can also provide support to increase compliance of the agricultural practices with the Common Agricultural Policy (CAP), which is the agricultural policy of the European Union.

Inter-organizational collaboration in a MSP involves maximisation of **resources and expertise**. All four companies have knowledge and experience in crop rotation and existing relationships with universities and agronomists make a good understanding of agronomic practices of rotation. Casalasco and Co.Pro.B. have the strongest relationship with farmers because they are cooperatives or farmer organizations. In contrast to Casalasco and Co.Pro.B., who both represent farmers, for Barilla and Cereal Docks there is an extra additional intermediate farmer organization required to communicate to the farmers. These are the intermediate linkages as explained in the interview:

*“Please note that Barilla does not have any farmers. We speak with the farmers’ organizations and it is up to them to speak with farmers” (Interview 1).*

Besides a good understanding of agronomic practices or crop rotation, Co.Pro.B. has experience in building sustainable supply chains by setting up a biomass project. In collaboration with a national energy company, Co.Pro.B. build a big energy plant and developed the supply chain for biomass sorghum. Also with this project, Co.Pro.B. has experience in engaging farmers and offering them alternative options in the field. This experience is perceived as an advantage:

*“We create a biomass supply chain and then we have a lot of expertise in developing the sugar beet supply chain so maybe this is a comfortable area for us” (Interview 3).*

One of the **challenges** of implementing the crop rotation system is the costs of implementation. Costs are not quantified yet, but investments are needed for research to develop a model that can calculate the benefits of the rotation system compared to the traditional agricultural approaches. Moreover, investments are needed to provide warranties for the farmers, and training and education of the farmers about the agronomic practices and benefits of the project. Another key challenge is the engagement of farmers in adopting the rotation practices. Farmers that are used to working with the traditional agricultural methods speculate on the market and only make short term planning based on current market conditions. The following quote shows that it is challenging to change the mind-set of the farmers:

*“Very few farmers, I don’t want to say all of them, but very few, make a medium term programmes. Most of them decide let’s say a few minutes, hours, days before they choose the crop they will put in the field, depending on which the market conditions. And farmers most of the time cannot understand the favourable impact they can have in the soil fertility, and in the mitigation of the risk” (Interview 1).*

It is not easy to change traditional agriculture approaches that farmers have been using for many years. However, experiencing the current volatility of the market may help to convince the farmers because they also aim to stabilize the situation. Another challenge is the ability of farmers to cultivate different crops due to knowledge or expertise, or because the location is not equally

suitable for all crops. Lastly, the confliction interest and negotiation of prices are challenging for the stakeholders.

The interviewees mention also other **requirements** that are necessary to adopt the crop rotation system. First, the farmers must be convinced about the benefits of the rotation system in order to engage. It is important that the farmers understand the benefits so that it is not only a top down approach. The following statements indicate that it is considered important that farmers become aware of the benefits and that farmer organizations can play an important role in convincing them:

*"The collaboration of farmer's organization [is required] because we need that they are convinced of the value of this. Otherwise it is top down from the buyers to the producers and we want the producers to be convinced that this is a useful tool also for them" (Interview 1).*

*"[...] we need to have engagement not only with our company and the most important partners, but it is the farmer that has to believe in this product and must take care in this way" (Interview 2).*

*"The promoting of the project could give more choices to the farmers, training them in order to let them know to actively join the chain and benefit from the results obtained" (Interview 4).*

The interviewees mention different **strategies to engage farmers**. The first strategy is to start with involving the large farmers. They are easier to approach than smaller farmers and they can be used as an example by showing the benefits of the rotation system. Another option could be that the large farmer uses part of their land for rotation so they can compare both methods themselves. These methods can be used as an example for other farmers by calculating and communicating the benefits to them. Key is to develop a model - with support from the universities - to quantify the impact and benefits of the rotation system in terms of cash flows, revenues, and risks to compare the benefits of traditional farming with rotation farming. This will help to communicate the benefits to the farmers because it provides clear evidence and the farmers can decide for themselves. First, the contract elements must be negotiated in order to quantify the benefits of the rotation and to determine what type of investments are needed.

In addition to the strategies that target the rotation practices for farmers, also **strategies** are mentioned **to improve collaboration** between the stakeholders. For example, it is important to start with the right objective and to share this with the other participants. Stakeholders must also establish rules together, such as to share important information with each other and have regular meetings and communication. Stakeholders can take advantage of the technology to share information by for instance skype or phone, but also face-to-face meetings are important. Moreover, it is essential to have moments of evaluation and adjust the approach if needed as indicated here:

*"But maybe in the next six months we can find the situation and we have to change the approach because one thing is what we are thinking now and another thing is what will happen" (Interview 3).*

### *Mobilise champions*

Barilla has responsibilities in **coordination** of the Barilla Sustainable Farming Initiative. Barilla can be seen as champion – or institutional entrepreneur – here because Barilla started the initiative and actively mobilised the other actors to join. The interviewees also suggested that Barilla should take the role of leader because of the central position in the collaboration and existing ties with all the stakeholders involved. However, an alternative is that an external consultant could be involved to collect all ideas and coordinate a mix of ideas of the others. The statements below show the different ideas for coordination that are mentioned in the interviews:

*“Barilla could coordinate the whole group because they could keep direct contracts with producers also is related directly and indirectly with other collectors and processors” (Interview 4).*

*“We involve an external provider, a consultant, and then we can collect all our ideas and hypotheses and they have to coordinate all the things” (Interview 3).*

### *Attitude towards the MSP*

The last question of the interview offered the interviewee two options. The first option would be to establish a MSP with in the first place Barilla, Casalasco, Co.Pro.B., Cereal Docks, Tuscia University of Viterbo and Wageningen University – with potential involvement of the local authority, and even other non-governmental organizations. This partnership will design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Designing a partnership takes time and effort, but facilitates collaboration by identifying position and direction for the collaboration, and a process for planning, implementation and evaluation. The second option would be to directly design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Significantly less time and effort is spend on identifying position and direction for the collaboration, and a process for planning, implementation and evaluation. Aim is to establish a contract based on the existing horizontal agreement. All interviewees agreed that the first option is more sustainable and that the second option is only an outcome of the first option. It is needed to integrate different supply chain and therefore alignment of all participants is important as indicated in the following answers:

*“Unfortunately option 1 is more sustainable since there are no contracts already prepared [...] So as I told you, you must be aligned with all the participants” (Interview 1).*

*“We don’t have difficulty to invest [...] because we know that a project needs money, time, and resources” (Interview 2).*

*“The second option it is quite difficult [...] [and] I think it is not an alternative option. For me the second option is the consequence of the first one. [...] If you remain in only one contract, you have one contract, but the other one is to create a supply chain” (Interview 3).*

*“We will choose the first option because the collaboration with other stakeholders could give to the company involved something more then what a simple sustainable supply chain could give” (Interview 4).*

Based on the interview results a **two level approach** is suggested to implement the crop rotation system. However, it is not possible to design a single standard contract that also includes variation for different locations, or division of output between the stakeholders. Moreover, besides engagement of the farmers, the stakeholder must also be committed and other requirements such as information sharing, communication, and evaluation are important requirements to establish the rotation system. Therefore, two levels are required to adopt the crop rotation system:

- (1) The first level is the *contract*, which aims to engage the farmers and exists of specifics for the rotation practices such as price, quantity, amount of land, number of years, and locations. A set of contracts is required for the rotation system because it is not possible for one contract to include all elements. As the pilots will show, the set of contracts will consist of contracts between the cooperatives and the farmers.
- (2) The second level refers to the *partnership* and contains specifics for collaboration between the stakeholders in the partnership, such as conversion of rotation practices, coordination of procurement, and coordination of stakeholders at horizontal level. This level is required to integrate the supply chains and targets the engagement of the partners and collaboration between them, which is required to develop a set of contracts that can be offered to the farmers. The aim of this level to develop a set of contracts, the engagement of partners and management of the different contracts for different locations.

## 5.2 DESIGNING EXERCISE

This section discusses the two pilots that are negotiated and discussed in the design exercise of the multi-stakeholder meeting. The pilots are consisted with the two level approach that is suggested based on the findings of the literature study and the interviews. This section discusses only the outcome of negotiation and the timeline. Then, section 5.3 will discuss the next steps of the design process.

The suggested **two level approach** got confirmed during the multi-stakeholder meeting. The stakeholders agreed that it is not possible to establish a contract without establishing a MSP. The current horizontal agreement is based on sharing agronomic practices, but a partnership is required to facilitate working with a set of contracts at multiple locations, to share outputs, to ensure commitment of partners, and to compensate for differences in volatility or risks among locations.

The two pilots are consistent with the two level approach because for both pilots a “protocollo” at horizontal level (level 2), and a set of contracts for the farmers (level1) are negotiated. Figure 9 shows the two pilot rotations as they designed during the multi-stakeholder meeting. Rotation 1 is the first pilot with durum wheat and tomato and rotation 2 is the second pilot with durum wheat, sugar beet, and a third crop. An important note is that for Barilla and Cereal Docks intermediate farmer organizations need to be involved and Casalasco and Co.Pro.B. represent the farmers directly because they are cooperatives.



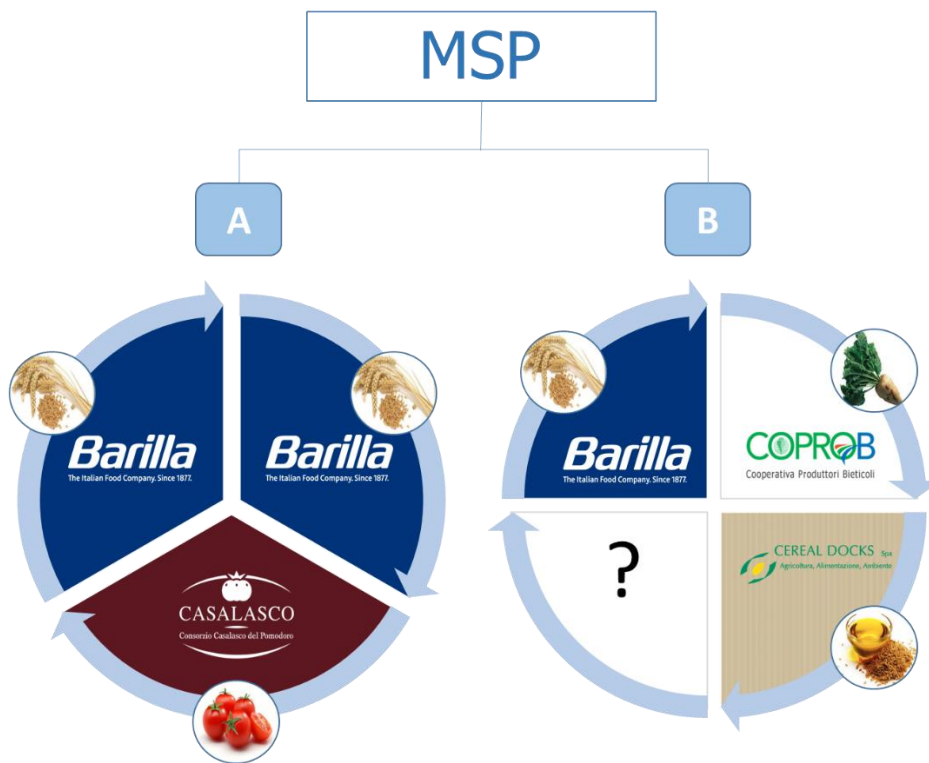


Figure 9: The two pilot rotations

#### *Pilot 1: Rotation with durum wheat and tomato*

Location: Parma.

It involves a three-year program with two years tomato and one year durum wheat.

Level 1: “Protocollo” (agreement) between Barilla, cooperative for durum wheat, and Casalasco. The aim of this agreement is to conversion of rotation practices, coordination of procurement, and coordination of the stakeholders involved in the different locations at horizontal level.

Level 2: types of contracts

1. Casalasco – farmers
2. Barilla – durum wheat cooperative
3. Durum wheat cooperative – farmers

Casalasco is already doing crop rotation with tomato and durum wheat so they have information and data available about investments and productions to calculate and quantify the impact of rotation. Moreover, Casalasco and Barilla see that a successful partnership could be a potential for investment in joint technologies such as drones or robots that check the crops for diseases. This will be beneficial for both the tomato and the durum wheat.

The incentive mechanism that is used in the rotation with tomato and durum wheat is that rotation brings lower production costs for the farmers. Prices are not negotiated before, but the market price is used to sell the products. At this moment Casalasco uses *voucher contracts*, which means that the same contracts are used for both tomato and durum wheat.



The pilot will start with 10 – 15 farmers. Idea is to use existing contracts as much as possible, such as the existing *horizontal agreement* and the *voucher contracts*, and change or complement where necessary.

### *Pilot 2: Rotation with durum wheat, sugar beet, and a third crop*

Location: Bologna or Ferrara.

It involves a four-year program with durum wheat, sugar beet, and a third crop.

Level 1: “Protocollo” between Barilla, cooperative for durum wheat, Co.Pro.B., a third party, and potentially a cooperative for the crop of the third party. The aim of this agreement is to conversion of rotation practices, coordination of procurement, and coordination of the stakeholders involved in the different locations at horizontal level.

Level 2: types of contracts

1. Co.Pro.B. – farmers
2. Barilla – durum wheat cooperative
3. Durum wheat cooperative – farmers
4. Third party – cooperative third party
5. Cooperative third party – farmers

For sugar beet, it is most beneficial to go in rotation every four years because of timing of the agronomic practices, so an additional partner is needed because rotation with sugar beet and durum wheat is not sufficient. Moreover, Co.Pro.B. has experience with a Decision Support System (DSS), which is a tool for planning a design of agricultural practices. Rotation practices are not included yet in this DSS tool, but it involves an opportunity for experimentation in agriculture, which enables calculation and planning on agricultural practices.

The incentive mechanism that Co.Pro.B. currently uses in an already existing three-year program for sugar beets, is the use of a price premium. The three-year program involves a commitment of three years to produce sugar beets and the first premium is provided to the farmers after year 1 (so after evidence of delivery). The premium for the second and third year are paid together after the third year. In this way, the premium is used as reward after delivery or as punishment if the delivery fails.

### *Timeline*

Here, the next steps and timeline of the project are explained as discussed in the multi-stakeholder meeting. The main is to start the pilot in September 2016, because this is the start period of sewing. There is a little room for delays because it is also an option to engage farmers in the second year. However, it is preferred that the farmers are involved since year one. The timeline from now until September is the following:

- |   |           |
|---|-----------|
| 1. Definition of partners                                       | May       |
| 2. Overview of examples of agreements and contracts             | May       |
| 3. Overview of data to calculate & communicate benefits         | May       |
| 4. Design the pilot contracts                                   | June      |
| 5. Final contract   | June      |
| 6. Legal check  | September |
| 7. Defining other elements of the pilots (e.g. list of farmers) | September |

The legal check is necessary to make sure that the practices and contracts are consistent with the existing legal environment.

### 5.3 CONTINUING THE MSP DESIGN PROCESS

This section discusses the results of the multi-stakeholder meeting related the steps in the initiating phase of the design process. First, the results of the interviews on the first three steps of the initiating phase are complemented with new insights gained from the design exercise. Then, the next steps of the initiating phase are discussed as presented in the theoretical framework: establish an interim steering body, build stakeholder support, establish scope and mandate, and outline the process.

#### *Clarify Reasons*

Looking at the initiating phase of the design process it can be argued that the **reasons and interests** of the different stakeholders that are involved are well aligned. However, not all the stakeholders that are likely to participate in the MSP are involved in the process yet. Therefore, the new stakeholders that will be involved must also be aligned with the objectives and even other (conflicting) interests may be added.

However, another **objective** of the rotation system is also a way of diversification of the portfolio of the four stakeholders. Value is created by differentiation of risks, not only via mitigation of risks of rotation practices, but also via the possibility to offer different contracts to the farmers, such as operating in the free market, premium contracts, and multi-annual contracts that are part of the rotation.

#### *Initial situation analysis*

It is not clear yet which **stakeholders** will participate in the rotation system. For the first pilot, the cooperative for durum wheat must still be involved, and for the second pilot is it not certain if Cereal Docks will participate or not. It was not easy to engage Cereal Docks in the interview and they did not attend the meeting so negotiations did not start yet. If they participate, an intermediate cooperative must be approached and if they will not participate, another partner must be involved and potentially also an intermediate cooperative. Moreover, no representative from the local administration is involved yet.

A reason to involve the **public party** is that local administration can safeguard that the contractual obligations are met. In addition, the local administration needs to be involved to perform the legal check, to make sure that the rotations are within the frames of the existing legal system.

Moreover, the participants of the multi stakeholder meeting emphasized that there is large difference in **relationships** with farmers between the four organizations. Engagement of farmers is perceived more challenging for Barilla and Cereal Docks than it is for Casalasco and Co.Pro.B. because they represent the farmers directly. Where Barilla states that it would be useful for them to have a research done by an independent party to find out why farmers are (not) willing to participate, Casalasco claims that they are ready to start the rotation because they have experience in rotation with tomato and durum wheat. A key reason for relatively easy engagement of farmers is the high level of trust of the farmers of the cooperative.

Moreover, it is **challenging** to find a suitable location for the crop rotation because the four stakeholders are not bounded equally to a specific location. For example, Co.Pro.B. has a plant in the Veneto region, close to Padova, and they are bounded to a distance of maximum 120 km from

that plant. Casalasco on the other hand is more flexible and also Cereal Docks is spread over Italy in terms of both farmers and plants. However, rotation with Casalasco and Cereal Docks is not possible because they are not operating in the same regions.

The **strategy** for implementation is to negotiate a pilot, then find a role model for the pilot, which can be used as example for other farmers. Then the rotation can be implemented in other locations as well. However, upscaling is challenging because of geographical limitations. In addition, location can only be determined if all stakeholders are involved so this will be a challenge after the pilot. The aim at this moment is to start with a pilot. There are different ways to differentiate incentive mechanisms: (1) offer a premium price for farmers, (2) guarantee minor costs (because of lower production costs) or (3) guarantee to buy the product (because if there is a surplus on one of the products, farmers have a hard time in selling in the free market). In other words, differentiation of the rotation systems can occur based on crops, locations, and incentive mechanisms.

Several **strengths** of the initial situation facilitate the process of designing of the partnership. First, there is already a long business interaction with Barilla and Casalasco and Co.Pro.B. meaning that there is already a good relationship and a level of trust between these stakeholders. Moreover, all three have a common understanding of rotation practices. They have shared knowledge about the technical or agronomical aspects of the rotation regarding their own crop, but also regarding the other crops. Third, they have a similar business culture and therefore understand internal dynamics of their own supply chain but also for the supply chain of the others. Last, they have an understanding about implications in terms of governance. For instance, they understand the boundaries of what can be expected from each other, such as for example buying from members or non-members due to different structures.

### *Mobilise champions*

The stakeholders see Barilla as a champion to initiate and organize the partnership because the initiative is originally introduced by Barilla, and because Barilla forms the link between the other organizations that have no other linkages prior to this initiative. However, the actors within Barilla and the other organizations should also be aligned about the project.

### *Establish an interim steering body*

According to the process model, it is important to put a legitimate steering group in place. An independent facilitator or organisation can ensure legitimacy by having a neutral position towards all stakeholders involved. An external consultant could be fair because Barilla is part of the rotation and participates in negotiation of the contract. The representatives from Barilla also argue that an independent party would not only increase legitimacy in collaboration with the partners, but can also increase legitimacy and trust among the farmers, meaning that this has an effect on both levels. Involvement of the public party is also expected to increase trust among farmers.

### *Build stakeholder support*

The next step in the initiating phase of the process model is building stakeholder support to enlarge trust among the stakeholders. The interviews of this research are for example an early involvement where stakeholders are consulted and listened to. Early involvement can increase trust and support among stakeholders. Regarding Cereal Docks, it is necessary to find out if they want to participate in the rotation system because their involvement has been relatively low. The

representative of Cereal Docks provided a written interview, but they were not involved in negotiation during the design exercise. From an agronomic point of view there is an additional partner needed in the second rotation. Therefore, for Barilla and Co.Pro.B. it is important to either build support and trust with Cereal Docks or try to engage another stakeholder with more interest and commitment.

In addition to early involvement, it is key to provide regular updates, and continue with (informal) discussions with stakeholder groups. Since Casalasco and Co.Pro.B. have a less issues in engagement of farmers, Barilla aims to do a research among durum wheat farmers about their interests and motivations to engage or not engage in the rotation system.

### *Establish scope and mandate*

Establishment of scope and mandate with a clear definition of authority a decision making powers is another step in this phase. However, authority and decision making in a mandate among stakeholders is not discussed yet in this meeting. The current focus is on negotiation the pilot rotations, but it recommended to establish these in future meetings.

### *Outline the process*

The last step in the initiating phase is developing an outline of the process. At the end of the multi-stakeholder meeting a timeline including the next steps is developed. The tasks are established, but it is not clearly stated what is expected from the different stakeholders. New meeting and activities should be scheduled and it should be discussed what is expected from the stakeholders in terms of time, commitment, and responsibility.

There is a tension between on the one hand planning and analysis and on the other hand action right away. Where researchers often prefer more analysis and research beforehand, where people working in the field might want to start right away. Brouwer et al. (2015) argue that it is not a decision for one or the other. Actions in an early phase create engagement and trust, and analysis is important but in complex situations, insights are often the result of trying and learning from doing. Therefore, it is important to find a balance between thinking and doing.

## **5.4 IMPLICATIONS FOR GOVERNANCE STRUCTURES**

This section discusses the implications on the choice for governance structure for the MSP, based on the analysis of the initiating phase of the Barilla Sustainable Farming Initiative. The rationales are not linked to a specific phase of the design process because they evolve throughout the process. Therefore, it is only possible to provide a preliminary understanding of how the rationales and governance structures will evolve. This section discusses the implications in terms of attributes and rationales for the three dimensions: the level of integration, the level of public involvement, and the level of administrative control.

### **5.4.1 LEVEL OF INTEGRATION**

Governance **attributes** of the level of integration are time taken to establish, goals, actors, power, linkages, risk, and rewards. First, the rotation is a project for the long term. Not only because the rotation itself will be a four to five-year program, but also because it requires time to establish trust, find a suitable location, convince farmers, and to design the final set of contracts after the pilots are completed. The goals that are established involve integration of the different supply chains and therefore entails that not only resources are aligned among the stakeholders, but that a new system is created with the rotation system. Therefore, based on attributes timing and goals,

collaboration is the required mode of governance. However, the stakeholders stay semi-autonomous because they are part of the partnership with high intensive relationships and connections but boundaries are still clear at the same time, referring to a mode that is in between coordination and collaboration. Linkages between members should be medium to tight, since it is a multi-annual rotation, meaning that partners cannot decide to move in and out at any time. However, the rotation can be renegotiated after the four or five-year program is finished. Moreover, the risk perceived by the interviewees is low, but the rewards expected are high. This is interesting because the theoretical model argues that high risk should involve high reward. A possible explanation could be that the risks are not very clear yet to the stakeholders since risks or required investments are not quantified yet. Development of the model to calculate the risks and benefits would help to have a better understanding.

The **rationales** for the level of integration are complexity and requirements in terms of sharing of information, alignment, or strong commitment to common missions. For the Barilla Sustainable Farming Initiative, it can be argued that the level of complexity cuts across agencies. Not only because the rotation system requires integration of multiple supply chains, but also the design of a contract to engage farmers in a multi annual rotation is challenging. There are different stakeholders that must come to an agreement at the MSP level and the contract level. Strong collaboration is required to facilitate working with a set of contracts at multiple locations, to share outputs, to ensure commitment of partners, and to compensate for differences in volatility or risks among locations.

#### *5.4.2 LEVEL OF PUBLIC INVOLVEMENT*

**Attributes** of the different governance modes of the level of public involvement are the operational model, the revenue model, and governance features. First, the operational tasks in this partnership are mainly tasks for the stakeholders that are involved in the agricultural practices of the rotation, so Barilla, Casalasco, Co.Pro.B., and Cereal Docks (or another additional partner involved). The role of the public party is envisioned to be funding, and guaranteeing that all parties will respect the conditions as they are negotiated the contract. Funding will help to cover costs, but public support will also increase credibility that will make it more attractive for farmers to engage. Moreover, making sure that everyone respects the contract is part of the general policy and does not change for moving from traditional contracts to rotation contracts. The public party will also be involved in the legal check, to make sure that the newly designed contracts and rotation systems fall within the current legal system. Looking at the revenue model, the private actors will derive the revenue from the transactions, and not from the public party. Then, the governance features in the collaboration are strong authority for the private actors and the property rights are completely separated from the public party. Less involvement of the public actor leads to high-powered incentive mechanisms. However, the incentive regime would be in between high-powered and low-powered because the contracts are using different incentive mechanisms.

The governance mode for the level of public involvement is located more on the autonomous side of the continuum based on the division of operational tasks, the low need for coordination between the public and the private partners, the revenue model, strong authority of the private actor, and the predominantly private property rights. However, two attributes move the governance structure to the integrative side of the continuum. First, the collaboration is dependent on the resources of the public party by means of funding and support. Moreover, the

contracts will be differentiated on incentive mechanisms, with potentially moving away from market mechanisms to nonmarket mechanisms.

The **rationales** for the level of public involvement are reducing environmental uncertainty, compensating for market externalities, and accessing idiosyncratic resources. The results of the interviews show that the main uncertainties that are experienced are market uncertainties. However, the level of uncertainty is relatively low because some of the stakeholders argue that they do not experience additional risks or uncertainties:

*"We know that challenges and risks are always there and are always part of our lives, but we don't have any risk in this kind of project because everybody can know what to do and which objective to achieve" (Interview 2).*

*"I don't see any risks; I see an opportunity" (Interview 3).*

The risks that are perceived are economic risks and volatility of the market. For reducing environmental uncertainty, the integrative governance mode would be recommended. Moreover, the existence of positive market externalities shifts the recommended governance mode to the integrative mode. The rotation system has positive market externalities because there are benefits for the stakeholders involved but also sustainability and stabilization of the market are benefits for society at large. In contrast, the elements related to accessing idiosyncratic resources move the governance mode to the autonomous side of the continuum. The private actors have strong knowledge based resources because of the high understanding of agronomic practices of the rotation system.

#### 5.4.3 LEVEL OF ADMINISTRATIVE CONTROL

**Attributes** of the level of administrative control are instruments of coordination, performance attributes, and contract law. The rotation program is a multi-annual crop rotation, and the stakeholders engage in a four or five-year program with the aim to stabilize the market, meaning that it shifts from market to hybrid governance modes. However, the pilots operate with different incentive mechanisms: premium prices, guarantee minor costs, guarantee selling. Therefore, the price incentive intensity is not fixed and can be different for contracts. Concerning performance attributes, it is the aim to make farmers act less spontaneously based on the market conditions, moving away from market to more hybrid modes. However, enforcement of the contract will occur through external court, referring to the market mode.

The **rationales** of the contractual dimension are contractual hazards and the existence of any alternative safeguards that act as substitutes for formal governance modes. The contractual hazard that is most experienced in the case study is uncertainty because of the volatility of the market. An alternative safeguard is if partners are involved in multiple alliances together (Oxley, 1997). The strong relationship between Barilla and Casalasco and between Barilla and Co.Pro.B. can be seen as an alternative safeguard for hierarchical governance modes. However, these alliances are lacking for Cereal Docks or another potential fourth partner.



## 6. DISCUSSION

This chapter will discuss the limitations of this research and provides recommendations for further research.

### 6.1 LIMITATIONS

The first limitation of the research concerns the data that is collected in the interviews. Casalasco and Co.Pro.B. are suppliers of Barilla so Barilla is an important client for them and it is important to keep a good relationship. Therefore, social desirable responding can lower validity of this research. For example, in case of the questions targeting relationships, motivations, or conflicting interest.

Second, the answers of the interview with Cereal Docks were provided written, where the other interviews were conducted via skype. A written interview does not allow for probing to get additional relevant information that is mentioned by the interviewee. Moreover, it is not possible to clarify questions or answers during the interview. Inconsistency in interview methods lowers the validity of the research.

The generalization of this research is also a limitation because action research involves working with a unique single case. Therefore, generalization of the conclusion is dependent on further research.

A fourth limitation is the language barrier. Since, interviewees are all Italian and the interviews were conducted in English, different languages can be a barrier to effective communication and understanding. For example, in the second interview there was a translator as intermediate between the interviewer and the interviewee. Speaking different languages and using translators increases the chance of misunderstanding or limits possibilities to express or explain aspects in detail.

The design exercise during the multi-stakeholder meeting was also in Italian and a summary of the outcomes of the meeting in English is provided as evidence for this research. Reliability is lowered here because the results are not based on the direct data in the form of transcripts, but already subject to interpretation. In addition, in this way it is not possible to use direct quotations as evidence for argumentations done by the researcher. However, the transcripts of the interviews are based on recordings and the interviews are more important for description of the initial situation.

Moreover, in the theoretical framework it is shown that the governance structure of an MSP is established in the third phase of the process model in designing an MSP, so the collaborative action phase. The rationales aim to provide insight in what modes of governance are likely to be developed. However, in the Sustainable Farming Initiative it is difficult to draw a conclusion because in this stage it is too soon to establish governance structures. Therefore, the answer on the first general research question is mainly derived based on literature study.

Lastly, action research involves collaboration between the researcher and the participants with multiple cycles of feedback, requires rigor methods and scientific discipline throughout the research, and has ethical considerations. First, this research satisfies with interaction for input for development of the research questions, interviews, confirmation of the transcripts, preparation of the design exercise, and the design exercise in a multi-stakeholder meeting. Although, there are

multiple moments of interaction, collaboration could be more intensified in later stages of the project since it also involves collaboration in the implementation phase. Second, rigor methods were secured in this research because of an extensive literature study, which formed a theoretical framework that formed the foundation of the empirical analysis. Third, action research involves ethical considerations due to its experimental nature. The participants were exposed to risk because it involves a research on a real life subject with real participants, real stakes and therefore risks involved. However, all the participants were informed on the activities and the results were validated by the participants.

## 6.2 RECOMMENDATIONS FOR FURTHER RESEARCH

The first recommendation for future research is that it could be relevant to follow the developments of the Barilla Sustainable Farming Initiative to be able to analyse how the rationales and their influence on the choice for governance structure evolve during the other phases of the design process. This is interesting because governance structures are not established in the initiating phase but only later in the design process. Moreover, this research does not take into account how governance structures change during the lifetime of a MSP.

Second, in this research there are different rationales specified for each of the three dimensions. Further research could aim to make an integrated model for the effect of the rationales on each dimension. However, since the three dimensions have different attributes, not all rationales have the same relevance for each dimension.

Moreover, in order to establish the rotation system research is required about the motivation and reasons of farmers to participate or not participate in the rotation. Although farmers are represented in the MSP by cooperatives, engagement with farmers directly will provide more insights in their interests and motivations. Also especially for the farmers of durum wheat this is required because Barilla needs to involve an intermediate cooperatives and faces challenges in farmer engagement.

Another aspect that is relevant for future research is the development of models that can quantify the benefits of the rotation system compared to traditional farming methods. These data can be collected for the first pilot from the rotation that is already performed by Casalasco with tomato and durum wheat.

Moreover, implementation of the rotation system requires establishment of incentive mechanisms and prices must be negotiated. Incentive mechanisms must be established for the pilots and then it is clear if prices must be fixed beforehand or if other incentive mechanisms are put into place and market prices are being used. It will be challenging to negotiate prices in such a way that all the partners and farmers are satisfied with the different contracts.

In addition, the current pilots are two rotations that are negotiated and organised separately. Both contain a separate “protocollo” at level two and a separate set of contracts at level one. Further research can analyse if a “third level” should be established to have all stakeholders involved in one MSP, and if so, what kind of agreement would be suitable. It can also be interesting to analyse whether it would be an option to have multiple rotations that can compensate for each other as part of one partnership but that would require strong partnership and alignment between the different partners, and even between the partners that are involved in different locations.



Lastly, this research discusses the agency of institutional entrepreneurs to change the institutional environment. Here, the changes of the institutional environment take place in the third level of Williamson's model explaining four levels of social analysis. Future research can analyse the role of private actor as institutional entrepreneurs and their agency to change the second level of social analysis, or the formal rules of the game such as constitution, laws, and property rights. This becomes relevant if new agricultural practices of the MSP influences (local) agricultural policy in case of strong collaboration with the public party.

## 7. CONCLUSION

This chapter will provide the answers to the general research questions. By answering the sub-questions with the findings of the literature study and the empirical study, the answers to the general research questions are derived. Section 7.1 will provide the answer to the first general research question, and section 7.2 will provide the answer to the second general research question.

### 7.1 FIRST GENERAL RESEARCH QUESTION

#### *Sub-question 1.1*

This paragraph answers sub-question (1.1) of the first general research question, which is “*what are attributes and dimensions characterizing MSP governance structures?*” This sub-question is answered by a literature study.

MSPs have the potential to solve complex issues, maximise resources and expertise and involve sharing of costs and risk between the stakeholders. Preconditions are overlapping agendas and motivations, trust (based on reputations, past experiences, or previous relations between the stakeholders), and the allocation of responsibility and authority. Partnerships imply new forms of governance. The governance mechanisms in place are formed by interaction of all actors that are involved in the supply network, and not just by individual firms. Ideal types do not exist, so all governance modes are hybrids. Moreover, they are not static, but change over time and evolve with different stages in the lifecycle of a MSP. Three dimensions are selected out of rich description on governance modes in literature.

First, the level of integration is differentiated in the categories cooperation, coordination, and collaboration. Attributes of this dimension are time taken to establish, goals, actors, sharing of power, linkages between members, risk, and reward.

Second, the level of public involvement is differentiated in the two categories autonomous and integrative governance. Attributes of the public private dimension are division of operational and coordination tasks, revenue model, and other governance features such as distribution of authority, property rights and incentive regime.

Third, the level of administrative support differentiates between market, hybrid, and hierarchy. Attributes are instruments of coordination such as price or authority, performance attributes such as spontaneous responding to the market or knowledge and administration, and dispute settlement according to court or internal dispute resolution mechanisms.

#### *Sub-question 1.2*

This paragraph answers sub-question (1.2) of the first general research question, which is “*what are rationales that influence the attributes and dimensions of governance structures when designing a MSP?*” This sub-question is answered by the literature study.

Rationales are formulated for the three governance dimensions. First, concerning the level of integration, complexity and requirements to solve the issue at hand are discussed. The larger the complexity of the issue, and the more it cuts across governments and agencies, the more the MSP moves towards collaboration. Also, based on the requirements to solve the issue – varying from information sharing, to alignment of activities across agencies, to synergizing and boundaries that

disappear to create something new – the governance mode shifts from cooperation to towards collaboration.

Second, the level of public involvement is influenced by reduction of environmental uncertainty, compensation of market externalities, and accessing idiosyncratic resources. The level of public involvement and the role of the public party is determined.

Third, the level of administrative support is influenced by the existence of contractual hazard such as uncertainty, asset specificity, and appropriability. If there are more contractual hazards, more hierarchical governance is preferred. However, if there are alternative safeguards, market modes are preferred.

### *Sub-question 1.3*

This paragraph answers sub-question (1.3) of the first general research question, which is *“how do rationales influence the attributes and dimensions of governance structures in case of the Barilla Sustainable Farming Initiative?”* This sub-question is answered by the empirical study.

First, concerning the level of integration it can be argued that the level of complexity cuts through agencies because the objective is to integrate different supply chains, and stabilize the market by engaging farmers in a multi-annual crop rotation programme. It requires strong collaboration between the different partners to facilitate working with a set of contracts at multiple locations, to share outputs, to ensure commitment of partners, and to compensate for differences in volatility or risks among locations. However, the two pilots are not completely synergised so boundaries between the stakeholders are still existing. Therefore, a governance mode in between coordination and collaboration is recommended for the Barilla Sustainable Farming Initiative.

Second, the level of public involvement will be mainly based on funding and guaranteeing that all parties respect the contracts. Since no representative of the public party is involved in the discussion yet, it is difficult to draw a conclusion about the preferred level of public involvement. The rationale of reducing environmental uncertainty and existence of positive market externalities of the rotation system recommend integrative mode of governance. However, access to idiosyncratic resources move the governance mode to the autonomous side of the continuum because the private stakeholders have strong knowledge and understanding of agronomic practices.

Third, regarding the level of administrative, the rotation system aims to stabilize the market, so moves away from completely price incentive mechanism to more controlled instruments of coordination. The contractual hazard exposed to the Barilla Sustainable Farming Initiative is uncertainty due to volatility of the market, leading to hierarchical governance. However, an alternative safeguard is strong relationships between Casalasco, Co.Pro.B., and Barilla because of previous collaborations.

### *General research question 1*

This section provides an answer to the first general research question, which is *“how do rationales influence the attributes and dimensions of governance structures when designing a MSP in the adoption of sustainable innovations in food value chains?”*

Three dimensions of governance structures of MSPs are selected in the literature study. These dimensions include attributes that characterize the modes of governance and rationales that

influence the choice for governance structures. It can be concluded that the objective of reshaping food chains requires a level of complexity that cuts beyond agencies and therefore a relatively strong level of integration is required between the stakeholders. In order to achieve integration of multiple supply chains, sharing of information or aligning activities alone is not sufficient. However, the stakeholders can remain semi-autonomous. The level of public involvement is relatively low where private actors take the lead in promotion and facilitation the sustainable innovations. From the perspective of the private party, it would be helpful if the public party participates by funding and ensuring that contractual obligations are met. However, representatives of the public party need to be involved in negotiation in order to establish the real level of public involvement. When reshaping food value chains, market risks can be a threat and new incentive mechanisms must be put in place. This calls for more administrative controls, however good relationship can act as alternative safeguards lowering need for administrative controls. In general, attributes and rationales are describing ideal types but are not mutually exclusive in reality. Moreover, governance structures are dynamic and change over time.

## 7.2 SECOND GENERAL RESEARCH QUESTION

### *Sub-question 2.1*

This paragraph answers sub-question (2.1) of the second general research question, which is “*what is the process of designing a MSP?*” This sub-question is answered by the literature study.

A process model for designing a MSP is explained and consists of four phases: initiating, adaptive planning, collaborative action, and reflective monitoring. Although every partnership is unique and no design process is exactly the same, this process model provides some structure or direction and can be used as a checklist because it outlines important considerations for effective collaboration. Also, the four phases are iterative, meaning that they are adjusted constantly during the process. The role of an institutional entrepreneur becomes visible in the first initiating phase, because this phase is the initiative starts, champions are mobilised that will take the lead in initiating and organizing the partnership. Throughout the other phases, they will actively mobilise actors and resources to implement institutional change by reshaping the governance structure, which takes place in level three of Williamson’s four levels of social analysis.

The first phase is *initiating* the partnership and aims to analyse the current situation in terms of stakeholders, motivations, champions, support, and expectations. The second phase is *adaptive planning* and involves that plans are developed based on the current situation. The third phase is *collaborative action* and here the ideas of the previous phase are put into action. The last phase is *reflective monitoring* and is embedded in the other phases because learning, evaluation, and improvement are important in every phase.

### *Sub-question 2.2*

This paragraph answers sub-question (2.2) of the second general research question, which is “*What are the steps for the Barilla Sustainable Farming Initiative in designing the MSP?*” This sub-question is answered by the empirical study.

The initiating phase is the current phase of the Barilla Sustainable Farming Initiative and therefore most relevant for this research. First, an analysis is done of the reasons and objectives, initial situation, relationships between different stakeholders to mobilise champions, and attitude towards a MSP. Based on the interview results, a two level approach is suggested for the rotation: level 1 as contract level containing the specifics for rotation practices, and level 2 as partnership

level containing specifics for collaboration between the stakeholders. Level 2 is required to facilitate working with a set of contracts at multiple locations, to share outputs, to ensure commitment of partners, and to compensate for differences in volatility or risks among locations.

Two pilot rotations are negotiated in a design exercise during a multi-stakeholder meeting, consistent with the two level approach. There are several steps that are needed to put these two pilots into practice. First, all the participants of the rotation must be involved: the durum wheat cooperatives, Cereal Docks or another third party including cooperative. Also, the “protocollo” at level 2, and the set of contracts at level 1 must be negotiated and developed. To do so, the incentive mechanism of each rotation must be negotiated (premium price, minor costs, or guarantee of selling). Barilla experiences the most problems in engaging farmers, so a research should be conducted to provide insights in why farmers are (not) interested in the rotation. Cooperatives have less problems with farmer engagement because of a high amount of trust. Also development of a model to calculate the benefits of rotation compared to traditional agriculture can help to engage farmers and to negotiate the contracts.

Moreover, following the process model, a legitimate steering group must be established, stakeholder support must be built through early involvement, regular updates and frequent (informal) discussions. Moreover, Barilla is suitable to act as leader or champion because of the central position and strongest ties with the other stakeholders, but an external consultant as independent facilitator can increase legitimacy and trust among partners and farmers. Also, the scope and mandate is not yet established with a clear definition of authority and decision making powers. The local administration must be involved to make sure with a legal check that the new system falls within the existing legal system. Moreover, an outline of the process must be developed. During the meeting a timeline and next steps are developed but not a clear agreement on what is expected from the stakeholders in terms of time, commitment, and responsibility.

The design exercise shows that the stakeholders tend to move quickly to later phases of the process model because they are strongly focussed on the outcome and implementation of the MSP, namely the set of contracts for the rotation, rather than the process of designing an MSP. Moreover, it can be argued that an overall MSP is not developed for this initiative, because the current pilots are two rotations that are negotiated and organised separately. Both contain a separate “protocollo” at level two and a separate set of contracts at level one. This involves that the stakeholders are currently not involved in one MSP, but in two “protocollo” that will be designed for the stakeholders that are directly involved with each other in the rotation.

### *General research question 2*

This section provides an answer to the second general research question, which is: *“what are the steps to design a MSP in the adoption of sustainable innovations in food value chains, promoted and facilitated by private actors?”*

The steps for designing an MSP can follow the process model with the four phases of initiating, adaptive planning, collaborative action, and reflective monitoring. Although the phases are iterative, and every partnership is unique, the model can be used as guidance for designing an MSP. In the design process of an MSP, stakeholders can tend to focus more on the outcome of the MSP instead of the process of initiating and planning. A main challenge in designing the MSP is the tension between on the one hand planning and analysis and on the other hand action right away. Planning is important in complex situation but early action creates engagement and trust. This

confirms that the phases of the design model do not have a fixed sequence. However, key elements that should not be overlooked are a legitimate leader or legitimate steering body to manage and coordinate the process, alignment between and within the stakeholder representatives, and support and trust among stakeholders.

Moreover, a two-level approach is recommended for actor engagement of adoption and diffusion of sustainable innovations in food value chains. Level 1 refers to engagement of farmers, and level 2 refers to engagement of the partners in the collaboration. In food value chains it can be beneficial to work with cooperatives to engage farmers because there is a large amount of trust. A second level is needed because it is not possible to include all element, which are required for reshaping agri-food chains, into a single contract or agreement. For example, complexities involve commitment to conversion of agricultural practices, a common disciplinary of production, coordination of procurement, information sharing and communication, and coordination of the stakeholders involved in the different locations. For both levels, different aspects must be negotiated in two different sets of agreements or contracts. Further research is needed to analyse whether level 2 must be one overall partnership with all stakeholders involved, or whether multiple partnerships at level 2 between different stakeholders can exist separately without an overall agreement. Another option would be to add a third level to have all stakeholders involved in one collaboration.

## REFERENCES

- Aiking, H., & De Boer, J. (2004). Food sustainability: Diverging interpretations. *British Food Journal*, 106(5), 359-365.
- Austin, J. E. (2000). Strategic collaboration between nonprofits and business. *Nonprofit and voluntary sector quarterly*, 29(suppl 1), 69-97
- Backstrand, K. (2006). Multi-stakeholder partnerships for sustainable development: rethinking legitimacy, accountability and effectiveness. *European Environment*, 16(5), 290-306.
- Barilla, 2012. Handbook for the sustainable cultivation of quality durum wheat in Italy.
- Barilla, 2014. Barilla signs sustainable farming project with Italian Tomato Consortium, <http://www.barillagroup.com/corporate/en/home/media/company-news/barilla-signs-sustainable-farming-project-with-italian-tomato-consortium.html>
- Baskerville, R. L. (1997). Distinguishing action research from participative case studies. *Journal of systems and information technology*, 1(1), 24-43.
- Battilana, J. (2004). Foundations for a theory of institutional entrepreneurship: Solving the paradox of embedded agency. In *Academy of Management Annual Meeting*, New Orleans, LA.
- Battilana, J., Leca, B., & Boxenbaum, E. (2009). 2 how actors change institutions: towards a theory of institutional entrepreneurship. *The academy of management annals*, 3(1), 65-107.
- BCFN, 2011. New models for sustainable agriculture. [http://www.barillacfn.com/wp-content/uploads/2011/12/pp\\_nuovi\\_modelli\\_agricoltura\\_eng.pdf](http://www.barillacfn.com/wp-content/uploads/2011/12/pp_nuovi_modelli_agricoltura_eng.pdf)
- BCFN, 2015a. Good for you, good for the planet. [http://www.barillagroup.com/sites/default/files/Barilla\\_2015\\_Report\\_EN\\_1.pdf](http://www.barillagroup.com/sites/default/files/Barilla_2015_Report_EN_1.pdf)
- BCFN, 2015b. Double Pyramid 2015. Recommendations for a sustainable diet [http://www.barillacfn.com/wp-content/uploads/2015/09/dp\\_divulgativo\\_ENG\\_web.pdf](http://www.barillacfn.com/wp-content/uploads/2015/09/dp_divulgativo_ENG_web.pdf)
- Berg, B. L., Lune, H., & Lune, H. (2004). *Qualitative research methods for the social sciences* (Vol. 5). Boston, MA: Pearson.
- Bernstein, H. (2014). Food sovereignty via the 'peasant way': a sceptical view. *Journal of Peasant Studies*, 41(6), 1031-1063.
- Bitzer, V. (2012). Partnering for change in chains: the capacity of partnerships to promote sustainable change in global agrifood chains. *Managing Wicked Problems in Agribusiness*, 13.
- Bradach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual review of sociology*, 97-118.
- Brouwer, H., Woodhill, J., Hemmati, M., Verhoosel, K., & van Vugt, S. (2015). *The MSP guide. How to design and facilitate multi-stakeholder partnerships*. Centre for Development and Innovation, Wageningen
- Burlingame, B., & Dernini, S. (2012). Sustainable diets and biodiversity. Directions and solutions for policy, research and action. *FAO, Rome, Italy*.

- Butterfield, K. D., Reed, R., & Lemak, D. J. (2004). An inductive model of collaboration from the stakeholder's perspective. *Business & Society*, 43(2), 162-195.
- Cornforth, C., Hayes, J. P., & Vangen, S. (2014). Nonprofit–Public Collaborations Understanding Governance Dynamics. *Nonprofit and Voluntary Sector Quarterly*, 0899764014532836.
- Cruz, C. O., & Marques, R. C. (2013). Flexible contracts to cope with uncertainty in public–private partnerships. *International Journal of Project Management*, 31(3), 473-483.
- De Schepper, S., Dooms, M., & Haezendonck, E. (2014). Stakeholder dynamics and responsibilities in Public–Private Partnerships: a mixed experience. *International Journal of Project Management*, 32(7), 1210-1222.
- Dentoni, D., & Bitzer, V. (2015). The role (s) of universities in dealing with global wicked problems through multi-stakeholder initiatives. *Journal of Cleaner Production*.
- Dentoni, D., Bitzer, V., & Pascucci, S. (2015). Cross-Sector Partnerships and the Co-Creation of Dynamic Capabilities for Stakeholder Orientation. *Journal of Business Ethics*
- Dentoni, D., Hospes, O., & Ross, R. B. (2012). Managing wicked problems in agribusiness: the role of multi-stakeholder engagements in value creation. *International Food and Agribusiness Management Review*, 15(B).
- Dentoni, D., & Peterson, H. C. (2011). Multi-stakeholder sustainability alliances in agri-food chains: A framework for multi-disciplinary research. *International Food and Agribusiness Management Review*, 14(5), 83-108.
- Entwistle, T., Bristow, G., Hines, F., Donaldson, S., & Martin, S. (2007). The dysfunctions of markets, hierarchies and networks in the meta-governance of partnership. *Urban Studies*, 44(1), 63-79.
- FAO, 2010. Food comes first. FAO and the eight Millennium Development Goals. *FAO, Rome, Italy*.
- Garud, R., Hardy, C., & Maguire, S. (2007). Institutional entrepreneurship as embedded agency: An introduction to the special issue. *Organization Studies Berlin-European Group for Organizational Studies*, 28(7), 957.
- Glasbergen, P., Biermann, F., & Mol, A. P. (Eds.). (2007). *Partnerships, governance and sustainable development: Reflections on theory and practice*. Edward Elgar Publishing.
- Glumac, B., Han, Q., Schaefer, W., & van der Krabben, E. (2015). Negotiation issues in forming public–private partnerships for brownfield redevelopment: Applying a game theoretical experiment. *Land Use Policy*, 47, 66-77.
- Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., ... & Toulmin, C. (2010). Food security: the challenge of feeding 9 billion people. *science*, 327(5967), 812-818.
- Grimsey, D., & Lewis, M. K. (2005). Are Public Private Partnerships value for money?: Evaluating alternative approaches and comparing academic and practitioner views. In *Accounting forum* (Vol. 29, No. 4, pp. 345-378). Elsevier.
- Halloran, A., Clement, J., Kornum, N., Bucatariu, C., & Magid, J. (2014). Addressing food waste reduction in Denmark. *Food Policy*, 49, 294-301.
- Hardcastle, C., & Boothroyd, K. (2003). Risks overview in public-private partnership. *Public-private partnerships: managing risks and opportunities*, 31-57.
- Harrison, L., & Callan, T. (2013). *Key research concepts in politics and international relations*. SAGE Publications Limited.



- Hartwich, F., Tola, J., Engler, A., González, C., Ghezan, G., Vázquez-Alvarado, J. M., Silva, J.A., Espinoza, J.J. & Gottret, M. V. (2008). Building public-private partnerships for agricultural innovation. Food Security in Practice technical guide series. Washington, D.C.: . International Food Policy Research Institute.
- Heldeweg, M. A., Sanders, M., & Harmsen, M. (2015). Public-private or private-private energy partnerships? Toward good energy governance in regional and local green gas projects. *Energy, sustainability and society*, 5(1), 1-12.
- Hodge, G. A. (2004). The risky business of public-private partnerships. *Australian journal of public administration*, 63(4), 37-49.
- Hodge, G. A., & Greve, C. (2007). Public-private partnerships: an international performance review. *Public administration review*, 67(3), 545-558.
- Hoppe, E. I., Kusterer, D. J., & Schmitz, P. W. (2013). Public-private partnerships versus traditional procurement: An experimental investigation. *Journal of Economic Behavior & Organization*, 89, 145-166.
- Hwang, B. G., Zhao, X., & Gay, M. J. S. (2013). Public private partnership projects in Singapore: Factors, critical risks and preferred risk allocation from the perspective of contractors. *International Journal of Project Management*, 31(3), 424-433.
- Johnston, J., & Gudergan, S. P. (2007). Governance of public—private partnerships: lessons learnt from an Australian case?. *International Review of Administrative Sciences*, 73(4), 569-582.
- Keast, R., Brown, K., & Mandell, M. (2007). Getting the right mix: Unpacking integration meanings and strategies. *International Public Management Journal*, 10(1), 9-33.
- Keast, R., & Hampson, K. (2007). Building constructive innovation networks: Role of relationship management. *Journal of Construction Engineering and Management*.
- Kesavan, P. C. (2015). Shaping science as the prime mover of sustainable agriculture for food and nutrition security in an era of environmental degradation and climate change. *Current Science*, 109(3), 488-501.
- Kivleniece, I., & Quelin, B. V. (2012). Creating and capturing value in public-private ties: A private actor's perspective. *Academy of Management Review*, 37(2), 272-299.
- Kolk, A., Van Tulder, R., & Kostwinder, E. (2008). Business and partnerships for development. *European Management Journal*, 26(4), 262-273.
- Kraak, V.I., Harrigan, P.B, Lawrence, M., Harrison, P.J., Jackson, M.A., & Swinburn, B. (2011). Balancing the benefits and risks of public-private partnerships to address the global double burden of malnutrition. *Public Health Nutrition*, 13(3), 503-517.
- Lange, P., Driessen, P. P., Sauer, A., Bornemann, B., & Burger, P. (2013). Governing towards sustainability—Conceptualizing modes of governance. *Journal of environmental policy & planning*, 15(3), 403-425.
- Lau, M. (2014). Flexibility with a Purpose: Constructing the Legitimacy of Spatial Governance Partnerships. *Urban Studies*, 51(9), 1943-1959.
- Levy, S. M. (1996). *Build, operate, transfer: paving the way for tomorrow's infrastructure*. John Wiley & Sons.
- Lewis, J. M., Baeza, J. I., & Alexander, D. (2008). Partnerships in primary care in Australia: Network structure, dynamics and sustainability. *Social science & medicine*, 67(2), 280-291.
- Lichtfouse, E., Navarrete, M., Debaeke, P., Souchère, V., Alberola, C., & Menassieu, J. (2009). Agronomy for sustainable agriculture: a review. In *Sustainable Agriculture* (pp. 1-7). Springer Netherlands.

- Lowndes, V. and Skelcher, C. (1998) 'The Dynamics of Multi-organizational Partnerships: An Analysis of Changing Modes of Governance', *Public Administration* 76(2): 313–33.
- Mayer, K. J., & Salomon, R. M. (2006). Capabilities, contractual hazards, and governance: Integrating resource-based and transaction cost perspectives. *Academy of Management Journal*, 49(5), 942-959.
- Nierenberg, D. (2012). Growing Solutions: Agriculture's Changing Reputation. *Harvard International Review*, 33(4), 72.
- Nikolic, I. A., & Maikisch, H. (2006). Public-private partnerships and collaboration in the health sector: an overview with case studies from recent European experience.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge university press.
- OECD/Food and Agriculture Organization of the United Nations (2015), OECD-FAO Agricultural Outlook 2015, OECD Publishing, Paris. [http://dx.doi.org/10.1787/agr\\_outlook-2015-en](http://dx.doi.org/10.1787/agr_outlook-2015-en)
- Ouchi, W. G. (1991). Markets, bureaucracies and clans, Thompson, G., et al.(eds.) Markets, hierarchies & networks.
- Oxley, J. E. (1997). Appropriability hazards and governance in strategic alliances: A transaction cost approach. *Journal of law, Economics, and Organization*, 13(2), 387-409.
- Padilla, M., Capone, R., & Palma, G. (2012). Sustainability of the food chain from field to plate: the case of the Mediterranean diet. *FAO, Rome, Italy*.
- Pacheco, D. F., York, J. G., Dean, T. J., & Sarasvathy, S. D. (2010). The coevolution of institutional entrepreneurship: A tale of two theories. *Journal of Management*, 36(4), 974-1010.
- Pancino et al., 2015. The role of network creation and actor engagement in the adoption and diffusion of sustainable innovations in food value chains.
- Patrinos, H. A., Osorio, F. B., & Guáqueta, J. (2009). *The role and impact of public-private partnerships in education*. World Bank Publications.
- Prager, K. (2010). Local and regional partnerships in natural resource management: the challenge of bridging institutional levels. *Environmental management*, 46(5), 711-724.
- Roehrich, J. K., Lewis, M. A., & George, G. (2014). Are public-private partnerships a healthy option? A systematic literature review. *Social science & medicine*, 113, 110-119.
- Røiseland, A. (2011). Understanding local governance: institutional forms of collaboration. *Public Administration*, 89(3), 879-893.
- Ronald, P. (2011). Plant genetics, sustainable agriculture and global food security. *Genetics*, 188(1), 11-20.
- Rondinelli, D. A., & Berry, M. A. (2000). Environmental citizenship in multinational corporations: social responsibility and sustainable development. *European Management Journal*, 18(1), 70-84.
- Rossi, M., & Civitillo, R. (2014). Public private partnerships: a general overview in Italy. *Procedia-Social and Behavioral Sciences*, 109, 140-149.
- Rowe, S., Alexander, N., Kretser, A., Steele, R., Kretsch, M., Applebaum, R., ... & Falci, K. (2013). Principles for building public-private partnerships to benefit food safety, nutrition, and health research. *Nutrition reviews*, 71(10), 682-691.

- Ruini, L., Ferrari, E., Meriggi, P., Marino, M., & Sessa, F. (2013). Increasing the sustainability of pasta production through a life cycle assessment approach. In *Advances in Production Management Systems. Sustainable Production and Service Supply Chains* (pp. 383-392). Springer Berlin Heidelberg.
- Stewart, D., Kennedy, A., & Pavel, A. (2014). Beyond nutrition and agriculture policy: collaborating for a food policy. *British Journal of Nutrition*, 112(S2), S65-S74.
- Streeck, W., & Schmitter, P. C. (1985). Private interest government. *Beyond market and state*.
- Sustainable Livestock (2013). Global agenda of action.  
[http://www.livestockdialogue.org/fileadmin/templates/res\\_livestock/docs/2013\\_strategy\\_doc\\_19\\_feb.pdf](http://www.livestockdialogue.org/fileadmin/templates/res_livestock/docs/2013_strategy_doc_19_feb.pdf)
- Tachizawa, E. M., & Wong, C. Y. (2015). The Performance of Green Supply Chain Management Governance Mechanisms: A Supply Network and Complexity Perspective. *Journal of Supply Chain Management*.
- Teisman, G. R., & Klijn, E. H. (2002). Partnership arrangements: governmental rhetoric or governance scheme?. *Public administration review*, 62(2), 197-205.
- Thornton, P. K. (2010). Livestock production: recent trends, future prospects. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, 365(1554), 2853-2867.
- Tvarnø, C. D. (2010). Public-Private Partnerships: An International Analysis in a Legal and Economic Perspective.
- United Nations. Department of Economic. (2015). The Millennium Development Goals Report 2015. United Nations Publications.
- Verdouw, C., Bondt, N., Schmeitz, H., & Zwinkels, H. (2014). Towards a Smarter Greenport: Public-Private Partnership to Boost Digital Standardisation and Innovation in the Dutch Horticulture. *International Journal on Food System Dynamics*, 5(1), 44-52.
- Verschuren, P. and Doorewaard, H. (2010). Designing a research project. 2nd. ed., Lemma: Utrecht
- Waring, J., Currie, G., & Bishop, S. (2013). A contingent approach to the organization and management of public-private partnerships: An empirical study of English health care. *Public Administration Review*, 73(2), 313-326.
- West, P. C., Gerber, J. S., Engstrom, P. M., Mueller, N. D., Brauman, K. A., Carlson, K. M., ... & Siebert, S. (2014). Leverage points for improving global food security and the environment. *Science*, 345(6194), 325-328.
- Wilhelm, M. M. (2011). Managing coopetition through horizontal supply chain relations: linking dyadic and network levels of analysis. *Journal of Operations Management*, 29(7), 663-676.
- Williamson, O. 1985. The economic institutions of capitalism. New York: Free Press.
- Williamson, O. E. (1999). Public and private bureaucracies: a transaction cost economics perspective. *Journal of Law, Economics, & Organization*, 306-342.
- Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of economic literature*, 595-613.
- Williamson, O. E. (2002). The theory of the firm as governance structure: from choice to contract. *Journal of economic perspectives*, 171-195.

World Bank (2014) Public Private Partnership Reference Guide.

<http://api.ning.com/files/lumatxx-0jz3owSB05xZDkmWIE7GTVYA3cXwt4K4s3Uy0NtPPRgPWYO1lLrWaTUqybQeTXIeuSYUxbPFWllysuyNI5rL6b2Ms/PPReferenceGuidev02Web.pdf>

Yin, R. K. (2013). *Case study research: Design and methods*. Sage publications

## APPENDIX A: INTERVIEW PROTOCOL

Name interviewee:

Organization:

Date:

Time:

### INTRODUCTION

Nice to meet you, thank you for having the opportunity for this interview. Is the sound okay/ skype working well?

My name is Anne Rappoldt. I am a MSc student at Wageningen University in the program that is called 'Management, Economics, and Consumer Studies'. The focus of my study is towards food supply chain management. Before doing my MSc I completed the bachelor program 'International Development Studies' with a focus on economics. Currently, I am working on my thesis, which involves a research of 6 months for Wageningen University.

As you might know, the research that I am working on is an initiative together with researchers from Tuscia University of Viterbo and Wageningen University. I will briefly explain what this research is about. My research focusses on **inter-organizational collaboration** – such as partnerships with multiple stakeholders like companies, governments, NGO's or knowledge institutes - targeting innovations in sustainable agriculture.

The sustainable farming initiative of Barilla – to adopt a crop rotation system together with Co.Pro.B., Cereal Docks, and Casalasco Tomato Consortium – is used as a case study. At this moment the sustainable farming initiative exists of bilateral horizontal agreements, so two companies are involved. My research suggest that a form of inter-organizational collaboration is needed to engage farmers in this sustainable farming initiative of all stakeholders involved.

In this context, my research aims to:

- (1) Undertake an analysis of the **initial situation of the sustainable farming initiative** to understand the context of the initiative. Therefore, questions in the first part of the interview will target for example: who are involved in the partnership? What is motivating your company to consider sustainable farming initiatives? What are issues, interests and expectation of the companies involved in the collaboration?
- (2) Understand **preferences for structuring or organizing** the collaboration. Therefore, the questions in the second part of the interview will target: how do you prefer the collaboration to happen? What are preferences for the collaboration in terms of management, structure or coordination mechanisms?

Do you have any questions about this so far?

In line with this, the interview consists of two parts. Part 1 contains general questions about motivations, expectations, and process of the potential stakeholders involved in the collaboration. Part 2 is more specific about your preferences related to how collaboration can be managed, structured, and organized.

This interview will take about 45 minutes

I would like to ask your permission to make an audio-recording of this interview, which I can use for my data analysis.

## **PART I: GENERAL & DESIGN PROCESSES**

1. Would you like to start with giving a brief introduction about yourself and your career path in this organization?
2. When and how did you first get involved in this collaboration about the horizontal agreements?
3. What is according to you the issue that this collaboration is targeting?
4. Can you identify the potential stakeholders that are involved in this partnership? Can you describe the relationships between them?
5. Do you have experience in any other form of collaboration with these stakeholders before this? If so, how and how did you experience that?
6. Do you think that collaborating in this partnership will change dynamics between the various players?
7. What role do you think could each organization play in the collaboration?
8. What do you think can each organization contribute in terms of resources, expertise, or time?
9. What is according to you the shared objective or shared interest of the different stakeholders involved in this partnership?
10. To what extent do you experience existence of conflicting interests between the different stakeholders?
11. What can be reasons for you to decide to join in the collaboration? What are benefits?
12. What can be reasons for you to decide to withdraw from the collaboration? What are challenges or risks?
13. How would you define success or failure of a collaboration?

14. What do you think is required to establish a successful partnership? On what term?
15. What are your expectations for the future in designing and running this collaboration?
16. Do you think there is anything else that is relevant for me to know about the collaboration?

## **PART 2: MANAGEMENT AND GOVERNANCE OF THE COLLABORATION**

The questions of part 2 are targeting different ways of how collaboration can be organized. With these questions I would like to gain an understanding how an ideal form of collaboration would look like according to you.

17. How would you describe your preferred relationship with the other stakeholders in the collaboration?
18. How would you describe the ideal way to coordinate in this collaboration?
19. Do you see any relevance in involving the government (regional authorities) in the collaboration? Why (not)?
20. What types of investments do you think are required to establish this collaboration?
21. How do you think you can keep the values/benefits of these investments within the collaboration?
22. What types of uncertainty (external factors) do you think are threatening the collaboration? How do you think these can be managed?

## FINAL STATEMENT

Now that we discussed all this as part of the initial situation, and preferences for management and governance of the collaboration, I would like to close with a final statement. I would like to make a statement that there are two options to facilitate this sustainable farming initiative.

The first option would be to first establish a multi-stakeholder partnership with in the first place Barilla, Co.Pro.B., Cereal Docks, Casalasco Tomato Consortium, Tuscia University of Viterbo and Wageningen University – with potential involvement of the local authority, and even other non-governmental organizations. This partnership will design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Designing a partnership takes time and effort, but facilitates collaboration by identifying position and direction for the collaboration, and a process for planning, implementation and evaluation.

The second option would be to directly design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Significantly less time and effort is spend on identifying position and direction for the collaboration, and a process for planning, implementation and evaluation. Aim is to establish a contract based on the existing horizontal agreement.

23. Which option do you choose and why?

## WRAP UP

Thank you, this was my final question. Is there anything you would like to add to the interview?

Then I would like to thank you for your answers and your time

I will analyse these results in the coming weeks and we will have the opportunity to meet the second week of March in Italy. During this meeting I will give an update about the progress of my research and the first findings.

Do you have any other questions left for me?



## APPENDIX B: INTERVIEW TRANSCRIPTS

### TRANSCRIPT INTERVIEW 1

Name interviewee	Cesare Ronchi
Organization	Barilla
Date	19 February 2016
Time	58 minutes
Type of interview	GoogleHangout
Language	English
Name interviewer	Anne Rappoldt
Recorded	Yes

*Would you like to start with giving a brief introduction about yourself and your career path in this organization?*

I Cesare Ronchi, I am senior purchasing manager in Barilla. Working in Barilla since 1997. At the present time I am in charge for the procurement of durum wheat from non-European countries. It means basically Canada, US, Mexico, Australia and so on. And besides this, I coordinate activities concerning durum wheat in the plants we have in Russia, Turkey, Mexico, and US. And on top of these I am also project leader for the Barilla Sustainable Farming. This is a project that would like [...] agro system more sustainable and more efficient [...] for our main raw materials like cereals, we come with rye, and tomatoes.

*When and how did you first get involved in this collaboration about the horizontal agreements?*

We started in the Barilla Sustainable Farming projects. One of the main pillar we advise from the agronomical perspective is the crop rotation. Crop rotation is important for several reasons: mitigation of [...], quality of the soil, the fertility of the soil. But one of the main constraints in making the crop rotation system is to sell the goods. So farmers could have problems in selling their products. So maybe a couple of years ago we started thinking about how to solve it. And so we established and started the discussion with some of our main suppliers, like Casalasco and Co.Pro.B., so tomato and sugar beets. Especially in the North of Italy are the favourable species [...] that we have this kind of agreement for several years.

*So the main issue of this collaboration is to adapt this rotation system and to solve the crops being rotated?*

Yes, the idea is to provide to the farmers the opportunity to produce several crops, making a programme of the rotation. A proper rotation I would say, because not all crop rotations are favourable. And so provide to the farmers the option to say to make a short long/term programme in rotation.

*And how do you perceive the complexity of this issue?*

To my opinion, one of the main constraints is the [...] from the perspective of the [...]. The crop depending on the price and market conditions. Very few farmers, I don't want to say all of them, but very few, make a medium term programmes. Most of them decide let's say a few minutes/hours/days before they choose the crop they will put in the field, depending on which the market conditions. And farmers most of the time cannot understand the favourable impact

they can have in the soil fertility, and in the mitigation of the risk [...]. We think that if you differentiate the crops, making a proper program, so producing different crops as like the common policy [...] You can mitigate the risks of the revenue, or maybe you can obtain the best price, but for sure you can reduce the risks in terms of costs, and you reduce the risk of the volatility of the market.

*Who is most affected? How do you see the different parties being affected?*

If you make a proper rotation, you have a beneficial impact on the productivity, in reducing costs and improving the quality of the production. Because in one word you make your production more efficient. And for the food companies or the processing companies it means that they have a more reliable supply chain in terms of quality and quantity. More than every year you have to identify and to check how many farmers want to produce tomato, how many farmers want to produce sugar beet, and how many farmers want to produce wheat. For the 4-year programme you know from the beginning more or less how much production they can give you. From that perspectives it is a win-win situation for farmers and manufacturers.

*And how do you think you can tackle the problem of making the farmers understand?*

Haha that is a nice question. There is no solution, but what we are trying to do is to ask help from the university with Wageningen for example. But also by collaboration with others like the university of Viterbo and Bologna. We try to demonstrate to the farmers the agronomic benefits because you improve the soil fertility, because you increase the quality of the soil, you also improve the stability of the income, and also thanks to the long term agreement with the consumers. Because sometimes and especially in certain areas if you want to produce a specific crop – legumes, potato, wheat, tomato, it does not matter what, sometimes farmers don't know to who they can sell it and under which conditions. On the contrary, with the long term agreement you can negotiate since the beginning the rules of the contract. So it helps them to make a risk assessment about what are the pro's and con's in making this.

*So for the future you foresee making agreements with consumers?*

We would like to make long term agreements with producers, so with our suppliers. And suppliers mean for us farmer organizations.

*Can you identify the potential stakeholders that are involved in this partnership? Can you describe the relationships between them?*

I think that a very important stakeholder can be the local administration. Because if we can convince local administration with a local agricultural policy to support such kind of system. Once again this is a win-win situation because they can provide money to the farmers who are involved in long term agreement in the local industry. So as a said, the local administration can be an important stakeholder for us, besides the universities.

*And how do you see the relationship between Co.Pro.B., Casalasco and Barilla in the collaboration or the partnership?*

The three of us can sit in front of the farmers and we say 'you, Anne, you are a farmer'. Every year you decide what can be useful to produce at your farm according to the present price, you make a

three or four-year agreement in which you say I commit myself in producing this this and this in this amount of time [...] about production and specific conditions.

*And do you have experience in other forms of collaboration with these stakeholders before this initiative?*

The only experience we have is for vertical agreements. Barilla since maybe 20 years is signing contracts with farmer organizations but only for durum wheat. It means we make an agreement with them about the production of durum wheat under certain conditions such as quality, pricing, system etc. But eventually despite the fact that we say rotation is good, we have focussed simply on the durum wheat. So theoretically again the farmer Anne can produce every year durum wheat and in the long term to our opinion this is not sustainable. On the contrary now they can have an additional tool.

*And at this moment there is also a horizontal agreement between Barilla and Co.Pro.B. and Casalasco right?*

Yes, the idea is to make something like that, to establish this kind of agreement.

*Because I read that you already signed the horizontal agreement with these two suppliers?*

Yes, but those are more agreements. They are not contracts. I would like to highlight this difference. An agreement is a mutual interest in supporting specific activities. So we would like that farmers would do it like that. A contract is that we commit that 1000 tons of this will be purchased by our organization and on the other side you commit yourself to produce this. This is a contract. It is small to differentiate but an agreement, at least in the Italian language, is more about an idea agreed on. A contract is something that oblige you to respect the conditions.

*And how do you experience the agreements that you have so far with these partners?*

The point is that agreements means that all of us, Casalasco, Co.Pro.B., Barilla, we have our own program about sustainability of the production. But these programs don't speak to each other. I mean, our programme is on the durum wheat, their programme is on the tomato or sugar beet. Each farmer has to speak with Barilla one, with Casalasco one, and with Co.Pro.B. once, and the idea is to speak at the same table. Our hope is that instead the farmer speaks only with Barilla for a contract of one year, then the year after I prefer to speak to Casalasco or prefer sugar beets. So instead of every year change ideas depending on the market conditions, once every 3/4/5 years the farmer sits in front of the organization of consumers, so of buyers, and saying I engage myself in producing one year for Barilla this amount, one year Casalasco this amount, and again with Barilla another year this amount, and the fourth year for Co.Pro.B. this amount. So for the coming four years I am engaged to produce this amount so is a contract.

*So it is for the long term, for multiple years?*

Yes, because rotation is agronomic practices that should be done during several years. Otherwise it is very hard to obtain results.

*And do you have experience in collaboration with the local administration before or with one of the universities before?*

The contracts we have here in Emilio Romano, where Parma is, are signed with the farmers' organizations and signed by the local administration. That is guaranteeing that both of us will respect the contract.

*So the local administration is already involved and fulfils a guaranteeing role?*

Exactly, involved and signing the contract. We guarantee that Barilla and the producers will respect this.

*Do you think that collaborating in this partnership will change dynamics between the various players that are involved?*

We hope yes, in improving the quality of the productions. Because farmers can have a better mitigation of the risks, and the quality of the service and the goods that they provide can be improved.

*And do you think besides the farmers, the dynamics between the companies will change compared to as it is now?*

Most probably that since the beginning you must be engaged in respecting specific rules, so it protects both of us. So instead of going into negotiation every time you want to buy or every time you want to sell, since the beginning we fix the rules which is useful for both of us.

*What role do you think could each organization play in the collaboration?*

In supporting this program, and for each company to engage in signing such an agreement. Maybe a small amount in the beginning, and more and more increasing the quantities behind the contract.

*How would you like to see this support?*

We expect that all of us try to focus and to highlight the beneficial impact for each supply chain, so which is the benefit for the durum supply chain, and which is the benefit for the tomato supply chain etc. Because the farmers become more manager than simply producers because they can better manage all the resources. Like in the industry when we would like to make investments for example, we make a study for the next ten years about what is the impact on the company for the next ten years in terms of cash flow, benefit, revenue, risk etc. We hope that it helps the farmers to become more aware about the consequences of each decision.

*And how do you try to communicate this to the farmers?*

We organized several technical meetings, we invited the farmers, we wrote several articles in the newspaper and in magazines saying beneficial impact of crop rotation. We published for example a handbook for the sustainable production of durum wheat in which we support the value of rotation.

*And is that only for the farmers of Barilla or also of the farmers from Co.Pro.B. and Casalasco?*

For all the farmers.

*Did you get any feedback from farmers based on that?*

We did not make any research on that. We just organized these meetings, but after it we never went for interviews or something like that. Please note that Barilla does not have any farmers. We speak with the farmers' organizations and it is up to them to speak with farmers. We did the calculation that besides the needs of durum wheat in Italy there are something like 20.000 farmers. So we are not able to speak with all of them.

*What do you think can each organization contribute in terms of resources, expertise, or time? What are your expectations?*

I don't have any expectations, we did not do any exercise on that. I know that Co.Pro.B. and Casalasco, since they are farmers' organizations, they have agronomists in the fields supporting farmers making decisions and so on. But personally I did not evaluate what is the possible resources being involved.

*And if we talk about this typical knowledge or this typical expertise do you think there is threat of misappropriation of this knowledge? How do you perceive this threat?*

No, I don't think so. Improvements for farmers [...], it does not matter if they provide to us [...] but also for society generally speaking.

*What is according to you the shared objective of the different stakeholders involved in this partnership?*

We are happy to share information. This is really a precompetitive activity so we don't have any interests to keep it secret but this is the reason why we spoke from the beginning with Stefano and other stakeholders. We have zero problem with sharing information, on the contrary we hope that these activities will be spread and even to the public society.

*Do you think there are any conflicting interests between the different stakeholders that are involved?*

I don't think so. Maybe we will discover, but I don't think so.

*What can be reasons for you to decide to join in the collaboration? What are the main benefits?*

As I told you, for us it is having a more efficient cropping system in production of durum wheat but also [...], we will have a better quality, lower costs, and to increase the competitiveness for the whole industry. Because better quality, lower costs and so on.

*Are there reasons for you to withdraw or not participate in the collaboration, like any challenges or risks?*

No. The only challenge is to convince farmers in adopting such kind of long term agreement. This is the main constraint for this application because we aim to make the production more efficient. The point is why farmers don't want to accept it.

*How would you define success or failure of a collaboration? Or what makes good collaboration?*

A success is to develop something that the farmers will accept, it is very simple.

*And how can collaboration stimulate this?*

That all of us agree about the conditions. It will be the very first example of such kind of collaboration in this type of industries. For other industries I don't know but at least for food industries there is no other example of this kind of collaboration. So we consider 'the beginning of the world' you could say.

*And if you say you want to agree about the conditions, what kind of conditions do you refer to?*

Anything should be negotiated. There are no conditions that we can define since the beginning. The idea is to define quality, quantity, timing, and price for us.

*On what term do you think you can develop a successful partnership?*

We know more or less which are the conditions for buying durum wheat and nothing else than durum wheat. For making a three parties, four parties contract with tomato and sugar beet and potatoes I don't know because nowadays we are talking about these three species durum wheat, tomato and sugar beet but in the future we will add some other species. My point is, I think we have no idea which is the [...] quality, quantity. The idea is to start this for three or four years.

*What do you think is required to establish or design this contract?*

The collaboration of farmers' organization because we need that they are convinced of the value of this. Otherwise it is top down from the buyers to the producers and we want the producers to be convinced that this is a useful tool also for them.

*Do you think there is anything else that is relevant for me to know about the collaboration?*

My idea is that after also the discussion that you will have with the other two partners more and more you can collect and then if we meet in a couple of weeks we can with an open discussion better understand. Because this is our perspective. I guess thanks to your questionnaire we explore more or less all the corners but we will have to see. The idea would be that maybe Casalasco and Co.Pro.B. since they are food producers but they are also farmers they will have a better 360 degrees perspective.

*Final statement: which option do you choose and why?*

Unfortunately, only option 1 is sustainable. Since there are no contracts already prepared. The idea is to sit and to arrange a contract, so today we don't have any format to say okay you sign it and it is ready. We have to find interconnection between the different crops and for your information we already started with the university of Bologna a project in which we will ask for example some grant from the local administration to develop a tool to calculate the benefits for the farmers to make a long term contract. The university of Bologna is leading the group with the four organizations, Barilla, Casalasco, Co.Pro.B., Cereal Docks and so on. And there is Emanuelle Blasi from the university of Viterbo and Gloria Minerelli, she is an agronomist, to try to prepare a project to evaluate what are the benefits for the farmers in making such kind of contract. So as I told you, you must be aligned with all the participants to this. Otherwise you cannot say "Anne, you produce durum wheat, potato and tomato the next four years, because Anne will close immediately the discussion".

## TRANSCRIPT INTERVIEW 2

Name interviewee	Davide Rocca and Elena Decó
Organization	Casalasco
Date	22 February 2016
Time	70 minutes
Type of interview	Skype
Language	English & Italian; translated by Elena Decó
Name interviewer	Anne Rappoldt
Recorded	Yes

*Would you like to start with giving a brief introduction about yourself and your career path in this organization?*

We are the first leading company in Italy and the third on European level. We are a cooperative of farmers' association and we are involved in tomato processing, so we are a food leader in this sector. We have three plants, 1 in Rivarolo del Re which is the main head quarter, and one in Piacenza and one in Fontanellato. We have our brand the most important is Pomi. Probably you know the slogan of Pomi, then we also have other second brands. If you are interested in this, I can send you a company profile later.

Our turnover is about 250.000 euro and we have more than 1000 workers and about 50 production lines. We have a very good food chain, but we are a cooperative of farmers and these are for us the main values.

Our farmers are growing more and more and these farms begin to be more and more important. In fact, our agronomists follow our farmers from the beginning to the end of the food chain in particular during seeding up to delivery directly in our plant. We are more and more careful to sustainability and all these aspects such as eco-friendly.

We started about 15 years ago and we try to develop more and more in particular monitoring the plant and we are more and more concerned to what are farmers are doing to assure that the tomato has a main [...]. We are more and more concerned about what is the [...] of this kind of vegetable and our agronomists are more and more concerned with this kind of services to our farmers.

Our techniques are concerned to act only when necessary and to use only products that are eco-friendly and specific of our tomato and we are improving more and more in sustainability to reduce environmental impact and costs.

We are doing more and more to manage water and to use this kind of resources to limit waste and to try to be the leader also in this kind of economically friendly aspects.

In order to optimize this type of resources such as water we are using particular instruments that are measuring humidity and [...] of the soil in order to act in the right moment and to save water.

*And have you also been involved in rotation of crops?*

Yes, we are doing crop rotation. We are convinced that rotation crops is the base of good growing of our tomato.

*When and how did you first get involved with collaboration with Barilla?*

Barilla is one of our most important client for 20 years. The sustainability with this great leader started more and more 15 or 16 years ago when we tried to implement a very good relationship based on horizontal agreements.

*And about the horizontal agreements. How did it start to form this agreement?*

That is a new agreement and this are the first tests with this leader, but we can assure to this company a sort of structure and are able to carry out this kind of sustainability. We tried to have this kind of tests in a special crop that is corn and we are developing this kind of project even with tomato too.

This project is based on rotation of crop considering both tomato and corn. We are using more and more very important technique that can be used both on this kind of tomato and in corn too. So we have this double possibility.

*If you look at the collaboration with Barilla with Co.Pro.B., Cereal Docks, and Casalasco, the potential collaboration, what is according to you the issue that his collaboration is focussing at?*

The most important advantage of this kind of project can be seen from farmer point of view and an industrial point of view. For farmers we can assure to our farmers associated a good commercial and save activity and the project can be evaluated from a farmer's point of view and the farmers can easily know where to deliver this product. And from an industrial point of view we have particular importance of a good product on a good market.

*How do you see the complexity of this issue?*

We have a good basis to carry out this project and we are complying with Barilla standards and we are agreeing with Barilla. We know this company very well and within the next year of the future we are extending this kind of project with other suppliers too.

*Can you identify other potential stakeholders to involve in this collaboration to adopt a crop rotation system?*

We will face all potential obstacles but we are ready, we have a good basis to carry out this project. We are going to prepare our farmers that are now only qualified and the project in this way can be a qualified product to. We are doing this kind of project to guarantee very good industrial opportunities.

*Do you think that besides the companies that are involved like Barilla, Casalasco and maybe Cereal Docks and Co.Pro.B., if there could be any other relevant parties for the collaboration such as the government, universities or other organizations?*

We think that is very important to have a relationship with the university and government too because we are already in contact with a lot of universities and laboratory can assure us particular tests on the products and so on. And to have a relationship with the government is essential for us to have sort of opportunity in money and help such as European contribution.

*And do you have experience in any other forms of collaboration with these partners before the rotation initiative?*

This with Barilla in 2014 was the first and main collaboration but we are starting more and more advantages and opportunities on rotation and we are going to improve our global GAP practices in this way. We have to remember and remind that a lot of clients asked us to improve this kind



of project such as Unilever and Nestle. They ask more and more to respect global GAP manners and good practices on sustainability and about the study on the carbon footprint.

*Do you think that collaboration within this partnership will change the relationship or dynamics between the different companies?*

No, we think that this could be only a good solution. And we think that cooperation is always a good thing and the most important thing is the dialogue between us and the client. We are always ready to understand our client requests and we are ready to improve in this way. So it is likely that our clients are more and more oriented in this kind of project so we are ready for these initiatives.

*What role do you think can each organization play? What can every partner contribute to make it work?*

Ask more and more in the recent year to respect global GAP manners, good practices on sustainability and about the study of the carbon footprint.

*Do you think that collaboration in this partnership will change the relationship or the dynamics between the different companies?*

No, we think this could be only a good solution and we think collaboration is always a good thing and the most important thing is the dialogue between us and the client. We are always ready to understand our client request and we are ready to improve in this way. It is likely that our clients are more and more oriented in this kind of project so we are ready for these initiatives.

*What role can each organization play? What can every partner contribute to make it work?*

We have a great collaboration or cooperation with our client. With Barilla this project is very good because Barilla can support us from the beginning to the end of the process. In fact, Barilla can assure support from their agronomists and the cooperation dialogue with the most important chief, so the chief of each department as for industrialized [...].

*So for support of Barilla you mean agronomists and for the farmers' practices?*

Yes.

*What is according to you the shared objective or the shared interests of all the partners involved in this project?*

Most important interest is both for agriculture for farmers and for clients. Because the farmers can protect it soil and continue to have a good product to offer and on the other side the clients such as Barilla in this case can assure to have their standards achieved and this product can be economically friendly and certified global GAP which is a certification for applying good agricultural practices, NTI which is an ethical certification and this could have a good impact on the market because our product is really [...] in the market.

*And how do you see the shared objectives with the government?*

As you know this kind of project is very expensive so the government will pay euro to improve this kind of project in terms of money and in terms of support sustainability and biodiversity.

*Do you think that can be conflicting interests between the companies, the universities or the government?*

Maybe conflict of interests could appear in particular the producer of pesticide and so on can have a great impact. Because both clients and government are always oriented to this kind of projects about sustainability and so on.

*What can be reasons for you to join this collaboration?*

The most important is a commercial one. In fact, a lot of clients ask to comply with new certifications such as Unilever for example told them that in 2020 this kind of client will buy only products that are certified. On the other hand, we have the conservation and respect of the soil. In fact, in this recent year we know that traditional techniques are more and more destroying our natural habitat.

*Are there also any reasons to not join? Or challenges or risks in this collaboration?*

We know that challenges and risks are always there and are always part of our lives, but we don't have any risk in this kind of project because everybody can know what to do and which objective to achieve. Challenges are part of our everyday lives, even though we have to spend time, money and resources.

*Do you think it is difficult to involve the farmers in the rotation system?*

Other aspect we have to remember that the farmer is traditionally oriented and faces changes in a different way about production because he is more traditional and so on but we are a cooperative of farmers associated so that we are improving our efforts and we are sharing this kind of products to farmers too so we are ready to respect this long time but with success.

*And how do you define success or failure of a collaboration? What makes good collaboration?*

Last year we had a lot of projects that did not has been achieved but we know that we can always learn and we are ready to take into consideration every part and every failure and so on. The most important thing is to achieve our main objectives.

*And how do you see a good collaboration? Besides the result, the way on how to collaborate with partners?*

Our cooperation means to us that we are open to our client's objective and we are ready to understand so that we can start to work together in a very different way so that the dialogue and so on.

*And what do you think is required to make this partnership with the rotation system a success?*

In particular, our products are based on rationalization of projects so that we can consider only the project that can be easily understand and shared by good quantity and good percentage of our farmers. We want to achieve a simple objective in a simple way.

*On what term do you think you can adopt this crop rotation system?*

This rotation system must be simple in the sense that those easily important on an economical level so the farmers must be open to this kind of new project but at the same time this project must protect the soil and must not have a good impact on the environment.

*Can you describe your preferred relationship with the other stakeholders in this collaboration?*

We can say that we start from the objective and improve more and more this kind of practices with the client and develop our partners in order to improve a product that is good and we have to be careful to the quality and the price too.

*Did you work with Co.Pro.B. and Cereal Docks before? Do you have a relationship with them?*

We are implementing a very good project with Co.Pro.B. and Cereal Docks because with Barilla we have done a lot of projects and we are in particular Co.Pro.B. is for sugar beet and Cereal Docks for export cereals.

*So you worked with them before?*

We have not yet worked with these two companies but we know them and we are improving and we are spending a lot of resources in this way so probably in the future we will.

*And can you describe what is according to you the ideal way to coordinate a collaboration with Barilla, Casalasco, Co.Pro.B., and Cereal Docks to adopt a crop rotation system?*

The reason of this project is rotation but this is a rotation that could be developed in 5 years and this project can consider tomato, sugar beets, and cereals and the main focus is to add the chance to work with the same farmers and the same farms. The most important aspects are always sustainability and the products that must be sustainable.

*How do you think you can ensure that this rotation works, to manage the project?*

The most important thing for us is to have clear objectives that are not carried out in two years but on a long period. In this way, we know that sustainability asks for time so we have to be concerned with a long period and we need to have engagement not only with our company and the most important partners, but it is the farmer that has to believe in this product and must take care in this way.

*And what do you think are the most important investments that is needed to establish this collaboration?*

We are not able to quantify this investment now because we are in the early stage of this project, but the most important things is that we have to share this project with a number of farmers, so more farmers and we don't know what will be the investments in terms of numbers of money now.

*Final statement: which option do you choose and why?*

We don't have difficulty to invest, the fact is to invest in a clever way because we know that a project needs money, time, and resources. But if we imply our resources in a good and clever way we can achieve our objectives.

### TRANSCRIPT INTERVIEW 3

Name interviewee	Marco Marani
Organization	Co.Pro.B.
Date	23 February 2016
Time	53 Minutes
Type of interview	Skype
Language	English
Name interviewer	Anne Rappoldt
Recorded	Yes

*Would you like to start with giving a brief introduction about yourself and your career path in this organization?*

I am the director of the agricultural part of our coop. We are in charge, Alexandro Capelli together with me we are responsible for planning and budgeting the sugar beet harvesting and the logistic point of view. We also have a biomass department that is in charge of developing biomass business like biogas, the boiler system and other things with sorghum. We are not young like you, it is many years that we are working in the agricultural business and nothing else. If you have any questions you can ask us.

We try to manage the opportunity from the local point of view and even worldwide, of course we have to start in a very close situation to avoid some problems that we have had in the past and we have now problems for the commodity price that creates some confusion in the mind of the farmers. This is the motivation why we started the collaboration with Barilla, Casalasco, Cereal Docks about this kind of business opportunities of the project.

*Can you explain what the confusion is about that you mention in the mind of the farmers?*

The confusion is that everybody tries to get the most important earn, to gain money, but the reduction of the price of the raw material like corn, wheat, potato, tomato creates some confusion for the farmers because it creates problems to make the right decisions for the right harvests. And of course there is the rotation approach but the rotation let the farmers with a lot of options]. Maybe so many opportunities for the farmer each year so they can choose from soya bean to sun flower for instance. They try to do business but the decrease of the price of the last 12 months above all create some trouble situation for the farmers because at this moment the breakeven is very high compared to the real situation of the price. The production even multiplied for the single price. And the people for the pre-time harvest, they have no clear idea which is the better solution for them.

*So you say it is the main challenge to find the right price?*

Yes, at the same times for us for the transformation of the industry is sometimes trouble because we have no enough raw material to purchase and then to have a right industrial planning is not easy. This year a manager for instance 2 million of tons the next year 1.5 million of tons or 2.5. This is the situation for the sugar beet because we have a close period that we are able to harvest in this area and I think it is the same problem for the tomato, for the soya bean and other products. The idea of our project is to create the situation to try to stabilize the situation for the farmer and for us looking for at least 4 or 5 years. Then the farmers are normally doing this approach but the problem is they move the production (crop) from agriculture to another one and of course that is the market but the market sometimes creates problems for the industrial processor. This is the process that we start in our business in our project basically.

*When and how did you first get involved in this collaboration with Barilla?*

We were involved the last year during the Expo where we had the first meeting and then we had different meetings to try to synchronize and to establish the guidelines that we have to use and then maybe – it was June last year that we started the idea. Exactly we started the first project two years ago with Barilla about the sugar beet and the durum wheat. This was the first time, then the second time the last year during the Expo we met to evaluate and to develop the agreement between other industrial approaches like soya beans and tomato to have a global and horizontal option for the farmers.

*What did this first project entail? You mention two years ago you started the first project with sugar beets and durum wheat. What was this project about?*

The project demonstrates that the two cultures was okay to have the option to demonstrate to the farmer that durum wheat after the sugar beet that the quality is better. And the input of fertilizer is less compared to the better performances.

*Was this also part of the handbook that is published?*

Yes, I think so for Barilla.

*What was your experience in this first project? What was your first impression about the collaboration?*

It was good. Even we developed two years ago the small club between the opinion leader of our shareholder and we showed to them in the big meeting the experience and the numbers. But normally, a lot of our famers utilize this kind of approach. We are in the upper part of Bologna province, highly specialized in durum wheat and even they are very high specialized in sugar beet. It is our business and our knowledge that we are using. Of course we can confirm that even for that there are other farmers that want to take advantage of putting in place the durum wheat culture.

*If we look at the collaboration with Barilla and Co.Pro.B. but also with Casalasco and Cereal Docks. What is according to you the main issue that this collaboration is targeting?*

The main issue is to create more options and to create for the farmer the opportunity for more years looking for with durum wheat and sugar beet represented. Intentionally two years but with the others we can put in rotation more options for the farmers. Even the other part of the problem could be that not all the farmers are able to cultivate for instance tomato or soya beans and then if we have the others to give to them like an option, maybe it is easier to convince them to create a global agreement for multiple years.

*So if you talk about more options, it is more options on what to cultivate?*

Yes, it means more options for the farmer, for the grower.

*For whom is this most targeting to create more options; is it focussed on farmers, society, or the companies?*

Both, for the company and for the farmers because they can stabilize. For instance, [...] If we are in trouble with the price they are not able to sell the product. And at the same time, for the industry it is part of the supplier warranty. They don't have to go to the market and buy at the spot market. The spot market now is very low, but when you are in trouble the sport market could be very high. Basically we would like to transfer to the farmer to play into medium and long term

approach instead of one year by one year playing. Now they survive one year and then another year but in this way it is not easy to do investment, even for the farmer but also for us.

*Do you think it is easy to convince them?*

No, that is not easy because they come from hundred years of history to get this year by year and it is not easy. But now the mind-set is better than before because the volatility of the market can help everybody to understand that it is better to stabilize the market instead of to speculate in the market. And it is one way, it is not the only way. We can also speculate each year, but we think that the average of the farmers would like to stabilize the situation.

*And how do you try to engage the farmers or to convince them?*

I try to explain what we are doing with you. Explaining that it is better to them and our feelings and we continue to repeat this to the grower that it is better to have something assured, not a hundred percent but something sure, and looking for the medium term instead of complaining about the investment or the specialization or the other things.

Then, we think that part of our growers can assume that this is a good way. It is important to share with them the objective. The objective is not only one part for the grower, for the farmer, but for the whole industry, it is a common interest with stabilization of the market.

*And if we talk about this collaboration, that is aiming to adopt a crop rotation system, who do you see as potential stakeholders to involve in a partnership?*

That will be mainly the big farmer, because the small farmer it is not easy to involve them because their places are very small and they continue to go in the same direction for us. And maybe the average of the big farmer can decide to utilize part of the farmer, of the property of the land, to put focus on this project. And then they can have the two options and they can compare the different ways. The normal way and the new one where they can get advantage from.

*And how is the current relation between the big farmers and Co.Pro.B. or the other companies?*

For us it is good because we are a coop and with our shareholders our partnership is very strong about the part for our region because our coop produces sugar beets since 1962 and that is the partnership with half percent of our shareholder is very strong. We can convince them as the first ones to be involved in the project. It will not be easy because they want to touch the result very quickly. But this is a medium term project not short term but we will use our tools to convince them. We are confident and some farmers will be involved and then we can reply the situation with other crops. Of course we need the project to get good results.

*And do you foresee a role for the government or the local administration to join in this project?*

Yes, we are trying to involve our region. The project starts in the Emilia Romagna region and even we are trying to involve them to receive some help from the regional CAP (PSR). But we don't know actually what will be the real support that we can get because we just have the answer in the end of March, maybe in February.

*And what do you think can be the role of the universities of Viterbo, Bologna and maybe Wageningen University?*

We ask from them to develop the modelling to compare the situation that we propose to the farmer compared to the normal market for instance. Even introducing the percent of the risk that we can assume in one direction that we don't have in another direction. These are numbers that we want to put in place because to convince the people; they must see some numbers and the risk

is not quantifiable most of the time. A lot of time people think about the surplus but the minus nobody wants to take care about the minus. So this is the modelling that we want to develop with the universities.

*So with creating the options in this multiple year program you would like to fix the prices beforehand for the farmers for the next five years?*

Yes, maybe not for five years because the price for five years is not easy but we have to establish which kind of horizon we want to see. Maybe we are even able to propose because for instance the sugar price it is quite impossible to look into a five years' price. First of all, we can offer to the farmer the minimum price and then establish the premium or some future: this is not easy.

*And do you have any experience in other forms of collaboration – of course with Barilla you have – but maybe with Casalasco, Cereal Docks, the government, or one of the universities?*

With Casalasco and Cereal Docks not directly, but with Barilla yes. With the universities and the government yes of course but now because of our business but about investigation about new varieties or something like this. We are very close with the university and the investigation department, even this year we involve our own investigation company of sugar beet that got involved in our company one month ago and then we put together all the effort to get a result.

*Is that together with the university of Viterbo or another university?*

We involve the University for other business for example to check the national land situation or other things, it is really a long term collaboration.

*Do you think that collaboration in this partnership will change the dynamics between the different stakeholders?*

I don't know. We believe in the project, but maybe somebody needs to be convinced. I don't know if the public administration will be motivated to accelerate the process, we hope.

*What kind of role can each organization play in this collaboration?*

For the industrial point of view this is clear. Each one has to get themselves results. But an important rule would be that everybody has to share with the other companies the experience. This is not easy because we are individual people and companies. Maybe for the university they can be closer to the real business compared to the actual situation. Of course the university has a rule, but sometimes still remain the theoretical rules and they have to go in the deep in the reality and to touch the real situation of the for instance in agriculture or economical point of view the same thing. Theoretically it is correct but we have to put in place the theory. Maybe this can help everybody. Of course the farmer can get advantage, even this could be untouchable advantages to help the planet. For instance, fifty percent of the farmer and to be sure that they don't have to think about the market but only to do my best in the harvest.

*What do you see as the shared objective of all the stakeholders involved?*

How share? With some meetings and communication. We are just starting the project so we do not have a clear idea about all these things. But when we have decided everything, I think it is important to have frequently meetings to compare and share the individual situation even to think of what we have to do. Because it is an idea, a new approach and actually in the finances we have the future approach and a new mind-set approach and maybe it could be that this is not a right idea. We have to meet monthly or each two months to meet the people and share the information and we have to take advantage of tools for instance to talk via skype or by phone or some mail

system. Let the technology help us to have the right tools to share the information but one thing is to share via website and another thing is to share face to face when the situation is different.

*And what do you think is the common interest of the companies, the farmers, the government, and the universities?*

To maintain agriculture, to maintain the agri-business and the supply chains. The agriculture actually receives fifty percent of the balance of the community to maintain the actual business level and we don't know how long we continue to have this kind of support

*And do you think there are conflicting interests?*

Of course. Because the grower wants more money and the buyers are interested to pay less money. Of course we could have some conflicts but it is important to share the common objective and then we have to mediate to get a right dealing and to get this kind of objective. It will not be easy but we will have to put in place strong efforts from us, from the grower, from all the parties.

*What can be reasons for you to join this collaboration? What are benefits for you?*

For us it is to stabilize the supply chain and to have the right dimension of the industry compared to the possibility to have the raw material.

*Are there also reasons for you to not join? Any challenges or risks?*

Research for us is a pillar of our approach, for getting in this kind of agreement that we are talking about and we have to improve our performance in the field. From our point of view, it is starting from genetics, from fertilization, so I still stay in the agricultural approach. But research means a lot of things and we have two important parts: we have to stabilize the price of the product and we are able to pay and we have to continue our efforts to improve our performance. And research can give us more tools, more variety, more management approach of the global. Research for us is basically that we live, we survive thanks to research about the agronomic approach even for the economical approach. We have to learn something and we want to continue to learn something. (sorry my answer was out of theme)

The risk is represented by the people want to maintain the volatility in the market. Also the change afraid the people!

*And what do you think are challenges or risks of adopting this rotation system?*

I don't see any risks; I see an opportunity. The last ten years we have seen very volatility of the market and what I learn from this is to put attention in the free market because the free market is free but it is free for everybody. And then of course to protect the market is exactly opposite of this but we have to find the right middle part and to move on and to try to maintain and it is not a total protected market and not a total free market. Even the GAP indicates this for instance for us to create something to ensure the market for the farmers. You are young but twenty years ago we [...] and very strongly put the agricultural market. This was different and then we went away to a total free market and now after 20 years we have to analyse what happened. Maybe it was not the right way to protect the total market but now we can assume that is it not very good to have a total free market. Because for instance the exchange rate of the value, the taxes, the crisis, the war wise situation can teach to us that it is better to find the average to each other.

*How would you define success or failure of a collaboration?*

How you get the result and how many farmers will be involved.

*And what makes good collaboration for you?*



The first step is to have the four different industrial companies and we are competitors, not directly but indirectly, that we can get a collaboration together first of all. The second one, but it continues to be the first one is to involve the grower. To convince the farmer this could be the right way to planning average and long term approach. This is a strong challenge, people are individualists. To create something that lasts 20 or 30 years they are big farmers and are convinced that they are in the right direction. And to convince them is better than to change or to have a different approach.

*On what term do you think you can establish this partnership? How much time is needed?*

The collaboration between us we have to get into two months for the next plant and we want to develop in our region. Because we want to get some advantage from some helps and subsidy from the region. And of course now it is not the right moment to start with the long term agreement with the grower because in the next two months we complete the sowing and then I don't know if we get advantage of this year for the other approach. Maybe we have to create the situation to propose to them this for the following year. And then we have very strictly the time that we have to establish everything but really I don't know if we are able to get this agreement for this campaign.

*Can you describe your ideal relationship with the other stakeholders in this collaboration?*

The important thing is to start with the right objective, the right point and to share with the others this kind of point and establish clearly which is the rules of the stakeholders. To establish this, it could be easy to manage the situation. But maybe in the next six months we can find the situation and we have to change the approach because one thing is what we are thinking now and another thing is what will happen. For instance, we suppose that 2 or 3 or 5 farmers that could be involved but maybe they refuse and then we will have to have the alternative option to involve them or involve another one and then this is our rule but also for the other stakeholders. I understand my answer it not an answer, but I don't have all the answers.

*No, it is a good answer. There is not a good or bad answer.*

We have a plan, but maybe we have to change it. We have to be able to change the plan.

*And what do you think is the ideal way to coordinate the collaboration?*

We involve an external provider, a consultant, and then we can collect all our ideas and hypotheses and they have to coordinate all the things and then we do our part and we have to pull our jackets and we have some delays to propose something new or something like this. It is an external part and then maybe we can report a rule to mix the different rules.

*What types of investments do you think are required to establish this collaboration?*

Our budget initially was we have hypotheses for 2-3 years from 300 – 400 thousand euros to put in place. Now depending which is the costs of the modelling, and which is the costs of the warranty to the farmers some situation even it is important to say which is the dimension of the actors of the phase that are involved in this. Even they are part of agriculture to share or to demonstrate with research that rotation is better than the other one. As you know in the research in a new project it is easy to spend money, the important thing is to have it. This is an idea of the first budget that we have been working on.

*And how do you think you can keep the benefits of this investments in the collaboration?*

Having less competition between the different industries and to improve our partnership with our shareholders.

*And how do you think you can guarantee that?*

Guarantee it is impossible to have guarantee. But our return of investment could be to stabilize the process and even the relationship with the shareholders is important because it is an untouchable thing but in the difficult moment the partnership helps everybody to put it into work. Because when the prices are very high it is working well but when we are in trouble, us and the farmer, it is difficult to get agreement to make the right decision.

*Final statement: which option do you choose and why?*

The second option it is quite difficult to take the decision because I don't know. In the first option I know the process, I have the leverage to understand and to take the decision. The second option, to design the horizontal agreement I think it is not an alternative option. For me the second option is the consequence of the first one. I don't know if I understand your question well but the second one, the agreement, is the final part, to have got the agreement with the other ones. If you remain in only one contract, you have one contract, but the other one is to create a supply chain. For instance, we are managing a supply chain. The project should be the objective to create multiple supply chains. It is not easy because each will first try to think of our own business but to create a common objective with the different kind of suppliers or supply chains. The horizontal agreement could be a consequence, but it is the final part.

*And you say you have experience in the first option? You say you know it and you know the process?*

It is our lives. We create a biomass supply chain and then we have a lot of expertise in developing the sugar beet supply chain so maybe this is a comfortable area for us.

*And can you explain a bit more about the biomass project? Are you also working with other stakeholders in that project?*

Yes, with an electricity company for green power, a national energy company, for the conversion of the old sugar beet plants. And we have a big energy plant with a boiler and we utilize the raw materials, the by-product, from the grower like straw and even we developed the supply chain for biomass sorghum. And the other one is that we developed the biogas plant and we utilize the sugar beet by-product to produce biogas and to produce electricity. The second one was easier because we manage the by-product but the first one was more difficult because we developed something new in terms of harvest, machine, genetics and so on.

*So technology wise this was difficult?*

To harvest the product. Because we put in place the biomass sorghum that was very high, 5 metres high, and then to dry it in the field was the difficult part to create the new machinery that can accelerate the water evaporation in the product like [...] and utilise the sun instead of the energy to dry it. Now it is working but it was tough but we developed through research we found the right genetics to put in place because we have the landing problem with the wind and we had to choose the right variety[...].

*And did you also find a challenge in engaging the farmers in this project?*

Of course we engaged the farmer. We took advantage of our role as a coop and that we try to involve our sugar beet growers to show this kind of opportunity and the specifics because the logistical point of view is important. Maybe our relationship will help us to start and then now with the result we show to them that it is an interesting option for the first discussion that we have and to have different kind of options in the field. Even we developed a plural-annual premium price like on the sugar beet and they like this kind of approach.

*Do you think it can be an advantage that you have experience in involving farmers in a new way of working with this energy project that can also help with the rotation system?*

Yes of course. But we put in focus was to have another option in the area than now is in the past year. To have another option, to have rotation and even to have differentiation of the business. Because an energy plant is different from a food or feed production plant.

## TRANSCRIPT INTERVIEW 4

Name interviewee	Elisa Valeri
Organization	Cereal Docks
Date	4 March 2016
Time	-
Type of interview	Written
Language	English
Name interviewer	Anne Rappoldt
Recorded	No

*Would you like to start with giving a brief introduction about yourself and your career path in this organization?*

.....

*When and how did you first get involved in this collaboration focussing to adopt a crop rotation system?*

We started to get involved in this collaboration working on sustainability projects creating supply chances starting from the farmer to the collector until the transformer. Then, in the same areas of production, we meet other stakeholders, like Barilla, that was already working to create supply chances as ours one. One of the main objects in common between those supply chances are sustainability aspects like rotation crops.

*What is according to you the issue that this collaboration is targeting? For whom is this an issue?*

The aim is to make farmers more sensible on environmental topics, soil issues etc. Then, to give them the possibility of dividing their production and crops or simply avoid mono succession.

*Can you identify the potential stakeholders that are involved in this partnership? Can you describe the relationships between them?*

The potential stakeholders that are involved in this partnership could be farmers, producers' association (ex. Consortiums) and collectors. In particular, consortiums or cooperatives could be involved in order to develop the local territory, considering the area requirements and the general aim to improve the respect of environmental sources (biodiversity, soil fertility, etc.) and social aspects.

*Do you have experience in any other form of collaboration with these stakeholders before this? If so, how and how did you experience that?*

Yes, we do. Cereal Docks, starting for some years ago, is developing sustainable supply chains of grains and oilseeds such as soybean, sunflower, white corn. The project wants the direct involvement of producers and collectors. They must comply not only with standard environmental aspects (good cultivation practices, protection of biodiversity, reduction of emissions), but also economic and social.

*Do you think that collaborating in this partnership will change dynamics between the various players? Why (not)?*

Yes, because this kind of cooperation helps to create continuity in developing the local branches not only for specific raw materials. This allows to work on crop rotation in order to improve the

quality of the production, exploit the mineral resources, make possible for producers to plan the cultivation focusing to the future and not only on the present day.

*What role do you think could each organization play in the collaboration?*

Each organization may advise the farmer not only to take agronomic decisions in the short period in order to improve the productivity and health of crops but also to program the crop rotation in order to be able to participate in more trade agreements, in order to provide to the farmer greater security in the time. This is the purpose of horizontal agreements.

*What do you think can each organization contribute in terms of resources, expertise, or time?*

The contribution of each of these organizations is:

Training of producer on the choice of chain contracts and also on the choice of the most suitable agronomic techniques (ex. strictly rules on pesticide and fertilisation for biodiversity save), in compliance with the specification of production that is recommended. Training on the importance of entering into more horizontal sales contracts, in order to allow the farmer to sell more than one commodity.

*What is according to you the shared objective or shared interest of the different stakeholders involved in this partnership?*

Contract programming for the development of crop rotation in accordance with local characteristics of the production area and the development of a more sustainable agriculture (areas vocation of production: like sunflower in central Italy and soybean in the Northern part).

*To what extend do you experience existence of conflicting interests between the different stakeholders?*

I do not think so, each of the individual sectors can develop separately but placed in the context of this collaboration, can only improve the result.

*What can be reasons for you to decide to join in the collaboration? What are benefits?*

To get the supply chains stronger, to create different output in order to improve the cultivation and use of the soil, supports the farmer work in the long-term work allowing that our work has a continuity. The farmer supported by technicians in this way can gain the benefits of cross-compliance, as its work is respectful of all points included in the P.A.C.

*What can be reasons for you to decide to withdraw from the collaboration? What are challenges or risks?*

For Cereal Docks, Barilla, Casalasco and Co.Pro.B. I do not think there are any conflicts of interest. The farmer, without a doubt, is taking a risk getting in a sector agreement that have not short-lived, because it is not sure it can immediately see the benefits of that work. Usually the farmer, always waiting for the best, changes very fast idea in the moment in which a crop has not produced as hoped.

*How would you define success or failure of a collaboration? What are factors that stimulate this?*

You have to create a project in which farmers can believe and that encourage to stay connected for a longer period than a single season.

*What do you think is required to establish a successful partnership?*

The large support of farmers and their presence at least for the duration of the development of a complete rotation plane (e.g. 4 years).

*How much time do you think is required to establish a successful crop rotation system?*

The minimum time of the development of a crop rotation, that has a significance from the point of view both agronomic and commercial

*Do you think there is anything else that is relevant for me to know about the collaboration?*

This partnership has an innovative footprint because the chains can develop following a single leadership but also through the collaboration of several companies creating a 360-degree view of the agricultural world with its needs in both thermal agronomic and market.

*How would you describe your preferred relationship with the other stakeholders in the collaboration?*

Our interest would be to develop the supply chain with integrated collaboration among the various stakeholders in order to improve not only our product of interest in the industry but all of the products in order to ensure the farmer's production.

*How would you describe the ideal way to coordinate in this collaboration?*

Barilla could coordinate the whole group because they could keep direct contracts with producers also is related directly and indirectly with other collectors and processors (). Furthermore, they could communicate with the Cereal Docks, Co.Pro.B. and Casalasco Consumers. The consumer, even if in small part or in different ways, can be at the same time a producer. Barilla currently knows all the links of these chains, and knows how to communicate not only the importance of the quality of individual crops, but also the importance of a 360 ° of the producer needs, the territorial needs but also those of the market more and more also careful to respect the environment.

*Do you see any relevance in involving the government (regional authorities) in the collaboration? Why (not)?*

Yes, I do. This is why we are already working with the Tuscia University of Viterbo and the University of Bologna. The project aims to support the farmers in choosing the most optimal contractual solutions we always insert their local contexts.

*What types of investments do you think are required to establish this collaboration?*

The promoting of the project could give more choices to the farmers, training them in order to let them know to actively join the chain and benefit from the results obtained. From the point of view of the producers, the investment translates into a cultural buoyancy improvement of the company and update the Farm System.

*How do you think you can keep the values/benefits of these investments within the collaboration?*

The benefit is the improvement of the Farm System in compliance with the requirements of environmental sustainability, social and economic.

*What types of uncertainty (external factors) do you think are threatening the collaboration? How do you think these can be managed?*

Mainly the market and the climate. The trust of companies to the project, programming in a perspective of mitigation of market fluctuations.

*Now that we discussed all this as part of the initial situation, and preferences for management and governance of the collaboration, I would like to close with a final statement. I would like to make a statement that there are two options to facilitate this sustainable farming initiative.*

*The first option would be to first establish a multi-stakeholder partnership with in the first place Barilla, Co.Pro.B., Cereal Docks, Casalasco Tomato Consortium, Tuscia University of Viterbo and Wageningen University – with potential involvement of the local authority, and even other non-governmental organizations. This partnership will design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Designing a partnership takes time and effort, but facilitates collaboration by identifying position and direction for the collaboration, and a process for planning, implementation and evaluation.*

*The second option would be to directly design a contract to engage farmers in the sustainable farming initiative, by ensuring outlet to all crops in the rotation system. Significantly less time and effort is spend on identifying position and direction for the collaboration, and a process for planning, implementation and evaluation. Aim is to establish a contract based on the existing horizontal agreement.*

*Which option do you choose and why?*

We will choose the first option because the collaboration with other stakeholders could give to the company involved something more then what a simple sustainable supply chain could give. This happened in particular when in the collaboration are involved also the Universities (in our case Viterbo and Wageningen), witch, with their technical experiences, they could improve the practical knowledge of the stakeholders. Barilla, Cereal Docks, CO.PRO.B. and Casalasco started to know the mind and the “warries” of the farmers while the Universities know how to developed solutions that could be directly apply to the supply chain.

*Is there anything you would like to add to this interview? Thank you for your answers and the time and effort that you put into answering these questions.*

Yes, this is why we are already working with the Tuscia University of Viterbo and the University of Bologna. The project aims to support the farmers in choosing the most optimal contractual solutions we always insert their local contexts.