

From the region to the world: becoming a top region in the field of Agro & Food through the implementation of Smart Specialisation Strategies

‘A critical exploration of the state-of-the-art, the inception, implementation and effectiveness of RIS3 Oost policy in the FoodValley Region’



BACHELOR THESIS
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Preface

Dear readers,

Hereby I present you my bachelor thesis about the implementation of the RIS3 Oost Strategy in the Food Valley, my Bachelor Thesis project for Human Geography, Spatial Planning & Environmental Sciences part of the Human Geography, Spatial Planning & Environmental Sciences program of the Radboud University Nijmegen.

I would like to use this moment to thank some people. Firstly I would like to thank my wife for giving me the time and space to finish my thesis on my own tempo, allowing me to try and workout how to combine study with work. I would like to thank my thesis advisor Pascal Beckers for all the effort he put into counseling me, even though he wasn't obliged to help me past my initial first year, he kept in contact and helped up on till the final moment. I would like to thank my fellow students Johan van de Vijfer and Bjorn Löring for the cooperation in the early stages of this thesis. Combining our minds to produce a conceptual model, searching for literature and composing the theoretic framework has been a great success. Lastly I would like to thank all the respondents, for allowing me to interview them and for their time that they have given to me.

I hope that all readers will find this thesis both informative and enjoyable,

Ruben Barnhoorn

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Executive summary

Innovation and R&D are becoming very important aspects for countries who want to achieve economic growth in the current age. When we look at R&D spending across the world, Europe is starting to lose its competitive position to the US and Japan. The Europe 2020 strategy has been adopted by the European Commission to get Europe back to the top by increasing the focus on innovation and R&D. Through the implementation of Smart Specialisation Strategies, European regions should become more competitive, more successful in the long run and contribute to smart, sustainable and inclusive growth.

This thesis is a critical exploration of the state-of-the-art, the inception, implementation and effectiveness of RIS3 Oost policy in the FoodValley Region. The RIS3 Oost focuses on four key sectors:

- Agro & Food
- Energy- and environment technologies
- Health
- High Tech systems and materials

These four specialisations are the most prevalent in the region and some of them are tied to specific geographical sub regions. By focusing on four specialisations Oost-Nederland hopes to maximize the potential for cross-over innovation. The biggest part of the innovative power is located within the countless SME companies in the region. Oost challenges entrepreneurs to invest in a sustainable, revolving and renewable economy. Oost differentiates itself by putting an emphasis on the valorization phase in the innovation chain. Turning ideas into concepts and concepts into business cases.

The FoodValley is located in the Western part of Gelderland (it also includes three municipalities from the Province of Utrecht; Veenendaal, Renswoude, Scherpenzeel). The region has a very strong Agro & Food focus. Being home to one of the world leading authorities on Agro & Food related research, The Wageningen University, the region wants to become a top region in the field of Agro & Food. To realize this goal, it's crucial that the Entrepreneurs, Education and Knowledge institutions and the Government combine their forces. By presenting a uniform front and having a uniform regional profile, it would allow the region to present itself in much broader and more international fashion. Inhabitants and businesses in the region make the bureaucratic borders of the municipalities much more fluent as many economic processes stretch across multiple cities. The strong cooperation between knowledge institutions and local businesses creates a breeding pool for agricultural innovation. Multi-level knowledge exchange is an important tool that the region uses to achieve this innovation, to achieve cross pollination between actors. Allowing information to flow from the

knowledge institutions to the regions companies, the region is able to keep the process of innovation going, turning research results into marketable business cases.

The starting point of the analysis is analyzing the implementation of the RIS3 Oost in the FoodValley. With regard to the RIS3 policy, smart specialisation is nothing new for the FoodValley. The cooperation within the triple helix was already very active before the European Union's adaptation of the RIS3 policy. Through the RIS3 and the OP-Oost it provides a legitimate basis for the regions unification with its FoodValley organization. It allows for more effective economic policy by for instance balancing the business climate between all municipalities or providing a forum where all actors in the region can turn to. Turning research into a marketable product or service is one of the main focuses of the RIS3 Oost.

The knowledge institutions have a clear leading role in the process of smart specialisation. The Wageningen University is closely involved with both the governmental actors as the businesses. After the change of the millennium The Wageningen University migrated to the current campus terrain. This enabled start-up and SME companies to use the facilities they left behind, such as high quality laboratories, expanding their ability to innovate in the process. The Wageningen Campus also serves as a breeding pool for innovation due to the proximity between R&D facilities and The University. On the other side of the spectrum, the University and the municipality cooperate on an economic level such as with acquisition. The government facilitates the process of innovation through providing financial means and facilitating conditions such as legislation. In the last stages of the innovation process, the valorization phase, is where the businesses get involved. Through cooperation, the knowledge from both the businesses and the knowledge institutions can turn this knowledge into marketable product or service, the process of valorization. Cross-overs between different sectors is a good example of how smart specialisation leads to innovation, for instance robotizing in the Agro & Food industry.

But innovation isn't something that always happens naturally, facilitating innovation is very important. The FoodValley organization and the other actors in triple helix constellation help to do this in a few different ways. For instance by promoting entrepreneurial education, facilitating spin-off and start-up companies with funds and facilities, organizing inspiration days and having information desks where people can turn to for innovation related issues. Facilitating innovation and the flow of information are important aspects of the multi-level knowledge exchange as displayed in figure 12.

I can stipulate that all my findings support the conclusion that the FoodValley region has fully adopted the smart specialization strategy as set out in the RIS3 Oost and OP-Oost. This can possibly be attributed to the fact that the region was already in the process of researching the possibilities an

economic regional approach. The region already had a very strong focus towards the Agro & Food sector with a strong cohesion. The RIS3 and OP-Oost only added to that. Rather than creating something new for the region, the RIS3 policy has bolstered the Agro & Food focus. The policy created a legitimate basis for the regions unification, balancing and improving conditions for innovation throughout the region and providing a way to present an unified front for the outside world, allowing the name FoodValley to become a household brand name, a true top region for Agro & Food. The FoodValley Organisation is a vital cog in the innovation machine, providing a network and a mediating role, the knowledge institutions stimulate innovation through the production of knowledge and providing facilities to help kick start the process that eventually can lead to innovation and valorization.

1. Introduction

1.1 Background

The 20th century marked the emergence of globalization, “*a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and non-human activities*” (Al-Rodhan & Stoudmann, 2006, p. 2). It changed the rules of the game. It marked the emergence of an internationalized world market as the ‘rise of the rest’ shifted the global balance of influence (Hart & Jones, 2010). The 21st century ushered in the ‘post-American world’, a world without a unipolar power, instead a multitude of powers share the world stage. This became apparent when the G8 was replaced by the G20 as the premier global financial institution (Hart & Jones, 2010). Economic growth in the 21st century is driven by R&D. The transition from a more traditional economy to an economy driven by technology has a profound effect on the ability of countries to stay relevant and competitive. Technological innovations render old technology obsolete. Recent research has shown signs that investing in R&D has a substantial effect on economic growth and has shown to have a high social return for society. (Coe & Helpman, 1995; Griffith, Redding, & Van Reenen, 2004).

In its current state the European economy is losing its competitive edge to other countries such as the United States and Japan. Much of this can be attributed to the productivity gap that exists between Europe and the United States (Commission, 2010). The European economy hasn’t adapted to the knowledge based economy in the rate as the United States and Japan. This can be partly explained by disparity in R&D investment between Europe and the United States and Japan. This is one of the main causes of the lower productivity in Europe (Commission, 2010).

Unlike most superpowers, the EU comprised of member states, sovereign and responsible for most of their domestic and foreign policies. This results in a fragmented union where policies on some subjects widely differ. The fragmented nature of the EU impedes its ability to quickly adapt to changing circumstances. Hitt, Keats, and DeMarie (1998, p. 22) state that “the technological revolution and increasing globalization present major challenges to firms’ ability to maintain their competitiveness”. Bonaccorsi et al. (2009) argue that the fragmented and nationally based public research systems are detrimental to their ability to form hubs and centers of world-class. It doesn’t help that a lot of countries and regions within the EU pride themselves in having a strategy that outlines how they will invest in new technologies. “This nationally-based fragmentation and the uniformisation of priorities leave Europe with a collection of subcritical systems, all doing more or less the same thing, systems which are unattractive and thus cannot play in the arena of the world localization tournament” Bonaccorsi et al. (2009, p. 16).

The EU lacks true economic agglomerations. Rather it has evolved into a collection of unattractive centers which lack both the mass to create scale and spillover benefits as present in world centers such as New York or Tokyo. Successful practices of course also exist within the EU but solely focusing on them would result in a 'drain' of the greater part of the European Territory. If, on the other hand, each region succeeds in developing an original and unique knowledge base, the scenario becomes much more interesting. This is the notion of smart specialisation (Bonaccorsi et al., 2009, p. 18).

1.2 The Europe 2020 strategy

The European Union has developed a sense of 'urgency', the realization that current situation will lead the European economy to the brink of relevance, to serve as a second tier market behind countries like the United States and Japan. The Europe 2020 strategy has to transform the European economy and the way of thinking, meaning the role of R&D must take a more prominent role in formulating policy. Smart specialisation has become an official innovation policy concept within the EU legislation as part of the Europe 2020 program. The Europe 2020 program consists of measures which are meant to move the EU beyond the crisis and create the conditions for a more competitive economy with higher employment (Commission, 2010). As part of the EFRO-program (*European Fund for Regional Development*), regions need to formulate a RIS3 strategy, RIS3 stands for national/regional research and innovation strategies for smart specialisation.

Smart Specialisation Strategies provide a broad and flexible strategy aimed at bridging the productivity gap between the EU and the rest of the world. "The adaptation of the smart specialization logic and its application to the EU regional context largely reflects a regional innovation systems logic. "The smart specialization approach explicitly acknowledges that for reasons of history and hysteresis regions vary not only in terms of their technological and industrial competences, but also in terms of their potential evolutionary trajectories" (McCann & Ortega-Argilés, 2013, p. 3). Smart specialisation doesn't seek to choose winners but rather focuses to strengthen the existing dominant industrial structure. Foray and Goenaga (2013, p. 3) state however that the level at which priorities are identified should not be too high as this would lead to sectoral prioritisation. The focus is to facilitate the growth of new activities. This is being done by discovering new opportunities, experimenting and exploring. This allows the government to stimulate innovation within a sector while strengthening the sector as a whole (Foray & Goenaga, 2013).

1.3. Research introduction

In this paragraph I will introduce my research. I will talk about the knowledge gap, present the main goals and research questions of my thesis and I will talk about the relevance of this research.

1.3.1 The lack of knowledge

Smart specialisation as a theory is relatively new and therefore total scientific body regarding smart specialisation is still somewhat limited authors like (Bonaccorsi et al., 2009; Foray, Goddard, Beldarrain, & Landabaso, 2012; Foray & Goenaga, 2013; Foray & Van Ark, 2007; McCann & Ortega-Argilés, 2013) have laid the groundwork for future research such as this one. Now five years into the policy of smart specialisation you see a lot regions either in the process of formulating a smart specialisation strategy or in the process of implementing the smart specialisation strategy as formulated for their region. The theoretic basis for smart specialisation has already been discussed but for the practice it still remains just that, a theory. There exists a knowledge gap when it comes to the effectiveness of Smart Specialisation Strategies, good practices of implementation and maybe even importantly examples of bad practices. This thesis focus to fill the void of that knowledge gap with a close examination of the smart specialisation strategy as formulated and implemented in the FoodValley region.

1.3.2 Social relevance

From a social standpoint this research holds a lot of value for the FoodValley region. This value stems from the fact that the Agro & Food sector in the FoodValley region plays a significant role in providing the region with employment (GO Oost-Nederland, 2013; Ministerie van Economische Zaken, 2004). In order to develop into a world class cluster and stay competitive at a global scale the region has invest into R&D and keep innovating (Foray & Van Ark, 2007). Adopting a smart specialisation strategy will help reinforce the image of the FoodValley as a world class cluster (GO Oost-Nederland, 2013).

1.3.3 Scientific relevance

From a scientific standpoint this research can be deemed relevant as it aids to the discussion of the effective and efficiency of Smart Specialisation Strategies. Smart specialisation as a concept is rather young but several publication have outlined the strategy (Bonaccorsi et al., 2009; Foray et al., 2012; Foray & Goenaga, 2013; Foray & Van Ark, 2007) while others have linked smart specialisation to other policies of the EU (Boschma, 2014; Capello, 2014; Charles, Gross, & Bachtler, 2012; McCann & Ortega-Argilés, 2014; McCann & Ortega-Argilés, 2013). There have been a several case studies regarding the impact of Smart Specialisation Strategies (Baier, Kroll, & Zenker, 2013; Hildreth & Bailey, 2014; Navarro, Querejeta, & Magro, 2011; Peck, Connolly, Durnin, & Jackson, 2013) however there is still a lot of room for future studies. The polycentric nature of the FoodValley region and the lack of a large metropolitan area makes the FoodValley region an interesting region, as a crossover between a rural and urban region.

1.3.4. Main goal and questions of this research

The primary data for this research will be gathered by means of a case study try to resolve the lack of knowledge as introduced in the previous paragraph. The FoodValley region will serve as they area of interest of the case study. The region falls under the RIS3 Oost and therefore that strategy will be the main focus for the case study. The main goal of this research will henceforth be:

Contributing to the academic and policy making body of work in the field of smart specialisation by gaining an insight in decision making process and analyzing the RIS3 strategy as formulated and implemented in the FoodValley region.

In order to accomplish this my main research question will be as follows:

“What is the state-of-the-art of the formulation and implementation of Smart Specialisation Strategies in the FoodValley region, what is the influence of the various actors that are involved in this process?”

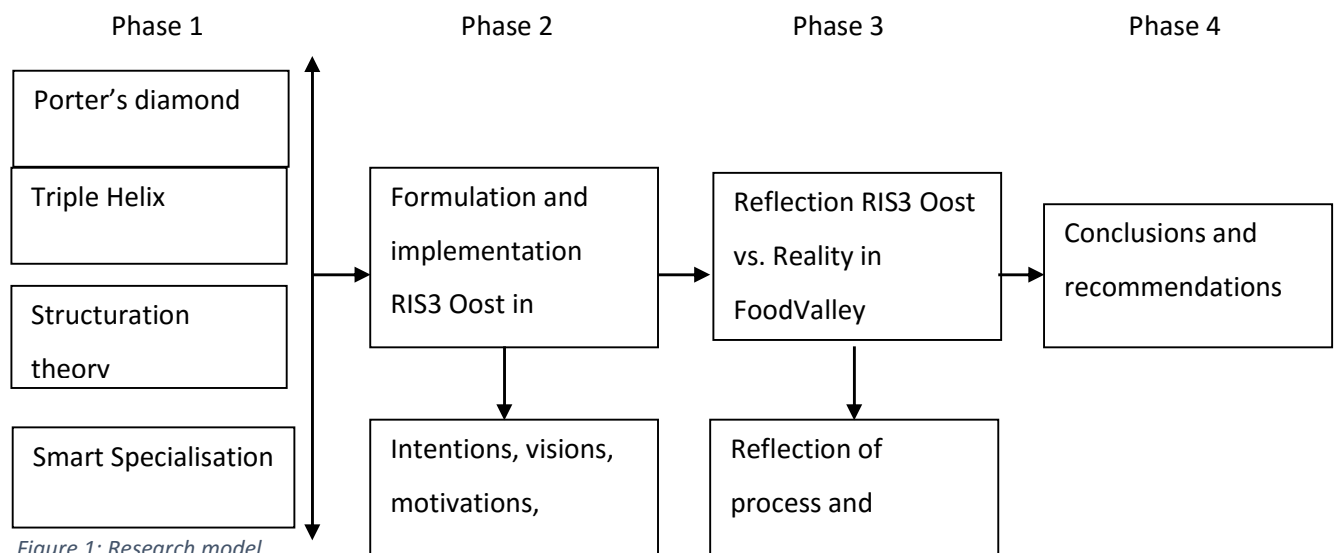
Building upon the main research question I have formulated a series of sub questions to help answer the main research question:

- *“What is the context of Smart Specialisation Strategies in the existing multi-level governance framework in the European Union?”*
- *“How is the Smart Specialisation Strategy RIS3 Oost formulated and how does this reflect the intended goals and motivations for the FoodValley region?”*
- *“How is the Smart Specialisation Strategy RIS3 Oost implemented by the various actors involved in this process in the FoodValley region?”*
- *“What are the preliminary results of the implementation of the Smart Specialisation Strategy RIS3 Oost in FoodValley and what is the influence of the various actors in the achievement of those results?”*

1.3.5 Research model

The research can be divided into four phases. In the first phase the desk research will be done, exploring how different theories, Porter, Giddens, triple helix and smart specialisation compare to each other and can be identified in the FoodValley region’s economic development. The first sub question will be answered in this phase. The second phase will be centered around sub questions two through four. The empirical body of work will be conducted in this phase, this gives me a chance to investigate the intentions, visions and motivations of the policy makers, preceding the empirical research I will study the formulation, implementation of the RIS3 Oost. The third phase will answer the fifth sub question and evaluate the implementation of the RIS3 Oost strategy in FoodValley by

means of reflecting on the process and outcomes of said strategy. The fifth phase doesn't pertain to a specific sub question, in this phase I will formulate an answer to the main research question, conclude my thesis and write recommendations for FoodValley region regarding the formulation and implementation Smart Specialisation Strategies in the region.



2. Theoretic framework

A good academic paper builds its foundation on the work of other, this is perfectly captured by the famous quote: “*Standing on the shoulders of giants*”. This chapter will do just that. I will discuss the literature which I deem integral to my research. I will discuss the FoodValley concept, the RIS3 OP-Oost strategy, define Smart Specialisation Strategies, give the economic background of smart specialisation and explain smart specialisation through Porter’ diamond model and outline how my bachelor thesis topic can be grounded in the works of Giddens’ *structuration theory* and Porters’ *diamond model* and Etzkowitz and Leydesdorff *triple helix model*.

2.1 Defining Smart Specialisation Strategies

The introduction I elaborated on how Smart Specialisation Strategies became an integral part of the Europe 2020 strategy. Now I will discuss more in-depth how the policy is formulated and structured and why the policy is deemed important.

The notion of smart specialisation was first coined by Foray and Van Ark (2007), members of the “Knowledge for Growth” (K4G) advisory body of the European Commission. The strategy is supposed to tackle certain prohibiting aspects and in doing so help Europe “stay in the game” (Bonaccorsi et al., 2009, p. 14).

Foray and Van Ark (2007, p. 2) provide two main causes for Europe’s inability to attract international R&D.

Firstly they argue the negative impact of national lines in creating world-class centers. The polycentric nature of Europe prevents expertise to free flow and find its own center of gravity. Policies and processes are fragmented at the national lines.

Secondly they argue that countries and regions in Europe are inclined to imitate successful practices rather than focusing on promising innovative practices. Policies “overemphasized new science-based leading edge industry in an unimaginative” Foray and Van Ark (2007, p. 2) resulting in an inability to compete at a global scale.

The focus on smart specialisation can help foster R&D development throughout Europe and help strengthen the competitive position of Europe.

How do Smart Specialisation Strategies differ from traditional R&D and innovation policies? Smart specialisation differs from traditional innovation strategies by not only focusing on horizontal interventions and neutral policy like improving framework conditions. Rather smart specialisation adds a vertical and non-neutral dimension and a linkage with regional policy (Foray and Goenega,

2013). Smart specialisation is meant as a policy objective to force regions and countries to take risks but it is also a “process to help policy-makers to identify domains and activities for potential specialisation” (Foray and Goenaga, 2013). Bonaccorsi et al. (2009, pp. 14,15) defines four basic characteristics of smart specialisation:

1. The creation of a large research and innovation area, allowing unrestricted competition.
2. The search for smart specialisation does not involve a bureaucratic process (plan) or an exercise of foresight, ordered from a consulting firm. It concerns an essentially entrepreneurial process in which the new knowledge produced relates to the pertinent specialisations of the region.
3. The specific properties of General Purpose Technologies or Tools (GPTs) define a framework to clarify the logics of SS for both regions that are at the technological frontier and those that are less advanced. While the leader regions invest in the invention of a GPT (biotechnology, information technology) or the combination of different GPTs (bioinformatics), followers must invest in the « convention of applications », that is development of the applications of a GPT in one
4. or several important domains of the regional economy. There is a role for governmental policies, which, once again, is not that of bureaucratically selecting specialisations and then picking the winners.

In formulating a smart specialisation strategy regions will present a more clear and less fragmented image to both domestic and foreign businesses. Provide the region with the ability to create agglomeration economies with a specialty in a certain field. For a smart specialisation strategy to work its crucial to set priorities. Foray and Goenaga (2013, p. 3) state that “Resources should be concentrated in specially selected domains dealing, with particular kinds of technology, field, disciplines, sub-systems within a sector or at the interstices of different sectors”.

As part of the Europe 2020 strategy smart specialisation has been fully integrated into European policy under the name RIS3. RIS3 stands for national/regional research and innovation strategies for smart specialisation. Foray et al. (2012, p. 9) formulated a detailed definition for RIS3 which focus on five important issues:

- Focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures;
- Build on each country's/region's strengths, competitive advantages and potential for

excellence;

- Support technological as well as practice-based innovation and aim to stimulate private sector investment;
- Get stakeholders fully involved and encourage innovation and experimentation;
- Evidence-based and include sound monitoring and evaluation systems.

Building on this definition Foray et al. (2012, p. 18) provide four principles that capture the economic transformation agenda of RIS3. These principles represent the four C's:

- *(Tough) Choices and Critical mass*: prioritize according to local strength and international specialisation – avoid uniformity and fragmentation – focus funding to improve budgetary management.
- *Competitive Advantage*: mobilize talent and business needs through an entrepreneurial discovery process.
- *Connectivity and Clusters*: develop world class clusters and facilitate forums for cross-sector connections both internally and externally in the region improving specialised technological diversification.
- *Collaborative Leadership*: efficient innovation systems as a collective endeavor based on public-private partnership.

Clarity about the implementation of a policy is often imperative as it ensures uniformity throughout the union and thereby increasing the effectiveness of the policy as a whole. To guide the process of finding an implementing Smart Specialisation Strategies Foray et al. (2012, p. 18) provide six steps for regions to follow:

1. Analysis of the regional context and potential for innovation,
2. Set up of a sound and inclusive governance structure,
3. Production of a shared vision about the future of the region,
4. Selection of a limited number of priorities for regional development,
5. Establishment of suitable policy mixes,
6. Integration of monitoring and evaluation mechanisms.

Smart specialisation has to provide strategies for all types of regions present in the European Union meaning that the policy has to be both applicable to the strong economic agglomerations in the EU as its peripheral regions. The EU as a whole might be competing at the highest possible level but this is not true for every region within the EU. McCann and Ortega-Argilés (2013) state smart

specialisation following traditional economic geographical logic favors core regions. Lagging regions often lack important elements which are off importance in a smart specialisation process. At first sight Smart Specialisation Strategies seem to most effective in places which are outside of the primary focus of regional policy, places with a developed regional innovation system, with strong entrepreneurship and innovation (McCann and Ortega-Argilés, 2013). As economic geography tells us less flourishing regions are usually over-embedded and over-specialized. At first glance it would seem that applying a smart specialisation strategy to such a region would increase the embeddedness rather than decrease, paradoxically however a smart specialisation strategy will actually be beneficial for lagging regions instead of hurtful (McCann and Ortega-Argilés, 2013). Smart specialisation pleads for diversifying within a certain domain to strengthen the existing industrial sector. The diversification will within a help regions adopt new technologies while building upon their existing expertise (Boschma & Iammarino, 2009). Even though smart specialisation as a concept was created with the premise that knowledge spillovers between different branches of industry can help strengthen the innovation in a region as a whole Foray and Goenaga (2013, p. 9) argue that “some regions can indeed specialize in the invention of the GPT while others will invest in the ‘co-invention’ of applications to address particular problems of quality and productivity in one or a few important sectors of their economies”.

2.2 Economic background of Smart Specialisation

The introduction presented the notion of smart specialisation and outlined the reasons that drove the EU to adopting this principle. Now I will elaborate further on the background and context of smart specialisation. First and foremost smart specialisation is a means to achieve and sustain economic growth. Coe and Helpman (1995, p. 859) state that economic growth depends on the utilization of resources, the rate of population growth, the savings rate, the mode of organization of economic activity, technological knowhow, and more. Unlike neoclassical theories which regard technological process as exogenous process (Coe & Helpman, 1995) it is innovation which drives technological advancement and productivity growth (Grossman & Helpman, 1991; Romer, 1989). The productivity level of an economy is directly impacted by both the R&D level of its own economy as the economy of its trade partners (Grossman & Helpman, 1991). Research done by Bayoumi, Coe, and Helpman (1999, p. 424) shows that Increases in R&D spending can significantly raise the level of domestic output in an economy. Furthermore they found evidence that domestic R&D spending can in fact generate significant spillovers in other countries (Bayoumi et al., 1999, p. 425). But innovation in and of itself innovation is nothing new, in fact the term was coined in by Austrian economist Schumpeter in his book *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle* (1934). He distinguishes five forms of innovation:

- Process innovation
- Product innovation
- Organization innovation
- Market innovation
- Resource innovation

Innovations in the process sphere are innovations that impact the process of a doing business such as new operating techniques in a ore refinery. Innovations in the product sphere are the development of new products such as electrical trains. Organization innovations affect the way a business is structured such as the implementation of maternal leave. Market innovations are the discovery of new markets such as the rise of internet markets and lastly there are resource innovations such as the discovery of new elements. Schumpeter's work can be viewed as the basis for modern day innovation theories.

Feldman (1999, p. 20) concludes that *"science-based activity is at the heart of new theories of economic development, technological change and industrial evolution Increasingly, it is recognized that the engines of national economic performance are sub-national technology districts that are characterized by strong ties between regional actors. This work is complemented by the empirical research reviewed here that finds that knowledge spillovers from science-based activities are localized and contribute to higher rates of innovation, increased entrepreneurial activity and increased productivity within geographically bound areas"*.

Innovation alone is not enough to achieve economic growth. In order to sustain economic growth over time one must have a competitive advantage over its competition. The next paragraph will outline Michael Porters Diamond framework from his book Competitive Advantages of Nations (1990) in relation to smart specialisation.

2.3 Smart specialisation as explained by Porter' Diamond framework

Michael Porter is regarded by many as one the greatest minds of our generation in the field of regional development. In his book *The competitive advantages of nations* he sets out a framework how to create a competitive economic advantage, this framework is called the diamond model.

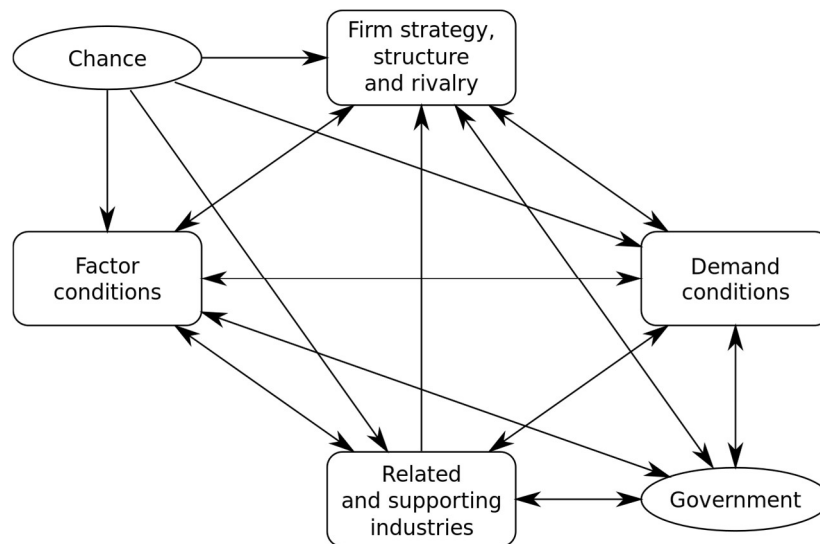


Figure 2 Porter' diamond model (Porter, 1990, p. 127)

The diamond model is comprised of four attributes, who together form the diamond of national advantage. These attributes are *factor conditions*, *demand conditions*, *related and supporting industries*, and lastly *firm strategy, structure and rivalry*. Outside diamond there exist two exogenous factors, chance and government. These attributes are:

1. Factor Conditions. The nation's position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry.
2. Demand Conditions. The nature of home-market demand for the industry's product or service.
3. Related and Supporting Industries. The presence or absence in the nation of supplier industries and other related industries that are internationally competitive.
4. Firm Strategy, Structure and Rivalry. The conditions in the nation governing how companies are created, organized and managed, as well as the nature of domestic rivalry.

(Porter, 1990, p. 78)

In this model each attribute is interdependent on the other. Porter (1990, p. 86) uses the example that sophisticated buyers will not translate into advanced products unless the quality of human resources permits companies to meet buyer needs. The points of the diamond constitute a system that is self-reinforcing. The model stimulates the development of specialized factors, most notable when rivals are located in the same area (Porter, 1990, p. 86). The diamond model promotes economic clusters. Businesses directly linked to competitive industry in the region (Porter, 1990, p. 86). The clustering of sector specific industry within a region can lead to knowledge spillovers. In the FoodValley it's the knowledge and innovations researched at the university which directly benefits local businesses. Porter (1990, p. 87) states that governments play a role that is inherently partial,

that succeeds only when working in tandem with favorable underlying conditions in the diamond. Successful practices of governmental policies are those that aim to influence the process not in a direct manner, when trying to create an environment in which companies can gain a competitive advantage, governments should according to Porter (1990, p. 87) aim for an indirect role rather than a direct role.

The theoretical basis provided by the diamond model serves as the starting point for smart specialisation and the logical how to improve the competitive position of a region.

2.3.1 Factor conditions

The first determinant of Porter's diamond is *factor conditions*. Porter (1990, p. 78) describes factor conditions as the nation's position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry. These factors directly or indirectly impact the regions ability to compete at an international level. Porter argues that quintessential factors aren't hereditary but created through processes that can widely differ between nations and industries (Porter, 1998, p. 74).

Porter (1998, p. 74-75) recognizes five categories of factors:

- Human resources like the quantity, skills and cost of personnel;
- Physical resources like the abundance, quality, accessibility and cost of the nation's land, water, mineral, hydroelectric power sources, fishing grounds and other physical traits;
- Knowledge resources like the nation's stock of scientific, technical and market knowledge bearing on goods and services;
- Capital resources like the amount and cost of capital available to finance industry;
- Infrastructure: the type, quality and user cost of the transportation and communications system.

Porter (1998, p. 76) argues that the competitive advantage gained through these factors depend on "*how efficiently and effectively they are deployed*". And just in what way these factors are deployed is paramount, where these factors are deployed in an economy is crucial as well, because technological expertise and human resources can often be used in a variety of industries (Porter, 1998, p. 76).

2.3.2 Demand conditions

The second attribute (Porter, 1990) is demand conditions, the nature of home-market demand for the industry's product or service (Porter, 1990, p. 78). Porter (1990, p. 79) Porter explains how

“It might seem that the globalization of competition would diminish the importance of home demand. In practice, however, this is simply not the case. In fact, the composition and character of the home market usually has a disproportionate effect on how companies perceive, interpret and respond to buyer needs, and where demanding buyers pressure companies to innovate faster and achieve more sophisticated competitive advantages than foreign rivals”

2.3.3 Related and Supporting Industries

The third attribute is (Porter, 1990) Related and Supporting Industries. Porter describes this attribute as the presence or absence in the nation of supplier industries and other related industries that are internationally competitive (Porter, 1990, p. 78). Porter (1990, p. 80) argues firstly that internationally competitive home-based suppliers create advantages in down-stream industries in several ways and that they deliver the most cost-effective inputs in an efficient, early, rapid and sometimes preferential way. Secondly he argues that home-based related and supporting industries provide a significant advantage in innovation and upgrading based on close working relationships (Porter, 1990, p. 80). Close proximity between suppliers and end-users allows them to take advantage of the short lines of communication, quick and constant flow information and the ongoing exchange of ideas and innovations. By being able to affect the technical effort and the ability to serve as test sites for R&D work, companies can accelerate the pace of innovation (Porter, 1990, p. 80). Thirdly he argues that the economy of scale is beneficial to companies, when suppliers themselves are global competitors, companies benefit the most (Porter, 1990, p. 81). The same is true for home-based related industries. Porter argues that home-based related industries also increase the likelihood that companies will embrace new skills, and it also provides a source of entrants who will bring a novel approach to competing (Porter, 1990, p. 81).

2.3.4 Firm strategy, structure and rivalry

The final attribute is firm strategy, structure and rivalry (Porter, 1990). Porter describes this attribute as the conditions in the nation governing how companies are created, organized, and managed, as well as the nature of domestic rivalry (Porter, 1990, p. 77). No managerial system is universally appropriate. Competitiveness in a specific industry results from convergence of the management practices and organizational modes favored in the country and the source of competitive advantage in the industry (Porter, 1990, p. 81). They take place in areas as the training, background and orientation of leaders, group versus hierarchical style, the strength of individual initiative, tools for decision-making and many more (Porter, 1998, p. 108-109). Differences in managerial philosophy leads to advantages and disadvantages in competing in different types of industry (Porter, 1998, p. 109). Domestic rivalry however is also a very important part in the creation of competitive advantages in an industry. According to Porter, (1998, p. 117-118), domestic rivalry becomes superior

to rivalry with foreign competitors when improvement and innovation, rather than static efficiency, are recognized as the essential ingredients for competitive advantage in an industry.

This stems from pressure of domestic rivals creating an environment to improve and to innovate, pushing each other to cut costs, improve quality and services and the creation of new products and processes (Porter, 1998, p. 118). Paramount to intensive domestic rivalry is the formation of new businesses in an industry. These new companies act as new segments and in turn will try new approaches that their rivals have failed to recognize (Porter, 1998, p. 122).

2.3.5 The role of chance and the government

The diamond model does however neglect some elements which are quintessential to smart specialisation namely the attributes governance and innovation. According to Mayntz (2003, p. 1) the term governance refers to a basically non-hierarchical mode of governing, where non-state actors participate in the formulation and implementation of public policy. Governance seeks to create an environment of facilitate collective action and develop a style of governing which blurs the line between the public and private sector (Stoker, 1998). Healey (2006, pp. 17-19) contributes this to the shifting in thinking in the 1990's, blurring the line between public and private sectors as *"the development in political thought have encouraged a proliferation of partnership of agencies, semi-public bodies and contracting agreements in which government actors work together with representatives of businesses, communities, voluntary groups and interest associations to develop and implement initiatives"*. For the diamond model this would mean that the government isn't the only exogenous factor in the model as it doesn't take into account the ability of the private sector to influence policy.

From a neoliberal perspective the model give little credit to the role of cooperation and institutes. The model presents itself in an abstract dimension disassociated from reality but the fact is that region are not situated in a black box, able to judge the competitiveness of a region solely on the factors as presented by Porter. In reality state boundaries have become increasingly more permeable (Dunne, Kurki, & Smith, 2013, p. 116). In a present day society countries are interlinked and are interdependent upon each other for achieving economic growth (Bayoumi et al., 1999), this interdependence spearheads the share in the same self-interest (Dunne et al., 2013, p. 118). Neoliberalism advocates the importance of institutions and relations. Institutions provide a sense of continuity, provide an opportunity for reciprocity, provide a flow of information and ways to resolve conflicts (Nye Jr & Welch, 2012, p. 72).

As far as innovation goes Porter does speak of competitive advantages within a specific sector but neglects to include to effect that R&D and innovation has on economic growth as stated by (Bayoumi

et al., 1999; Feldman, 1999), other research has also linked the importance of innovation practices in realizing economic growth (Atkinson & Ezell, 2012).

Innovation and governance are two crucial elements of smart specialisation. However the four attributes of the diamond model can also be viewed as core elements of smart specialisation. Smart specialisation uses the elements provided by the diamond model and incorporates new elements in innovation and governance. Smart specialisation not only seeks to stimulates the development of specialized factors but also put emphasis on the need for R&D and innovation to stay competitive. This can only be achieved by a collaboration of the government and local entrepreneurs and businesses through means of governance.

2.4 Etzkowitz and Leydesdorff' Triple Helix model

As mentioned in the previous paragraph the diamond model speak of the term government, however using the term governance instead is more accurate. The triple helix thesis provides a governance model in which the state, the industry and the academia work together in order to create a knowledge infrastructure (Etzkowitz & Leydesdorff, 2000, p. 111).

Stanford University (2015) gives three main ideas on which the triple helix thesis relies on:

- A more prominent role for the University in innovation, on a par with Industry and Government in the Knowledge Society;
- A movement toward collaborative relationships among the three major institutional spheres, in which innovation policy is increasingly an outcome of interaction rather than a prescription from Government;
- In addition to fulfilling their traditional functions, each institutional sphere also “takes the role of the other” performing new roles as well as their traditional function.

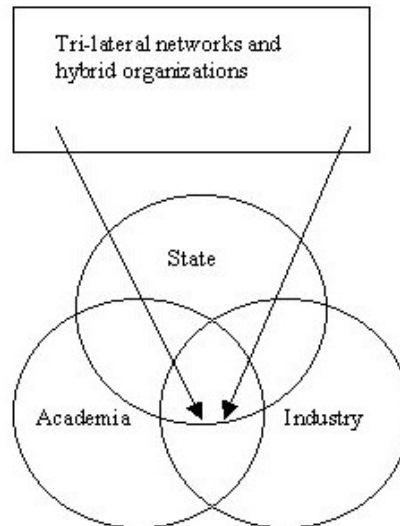


Figure 3: Etzkowitz & Leydesdorff's Triple Helix model (2000, p. 111).

Etzkowitz and Leydesdorff (2000, p. 109) state that the university can play an enhanced role in innovation in increasingly knowledge-based societies. The triple helix thesis or model as shown in figure 3 represents the collaboration between the three actors within the model, the state, the academia and the industry. But why collaborate? According to Etzkowitz and Leydesdorff (1995, p. 4) the paradigm is based on meshing the disciplines of marketing, development and research, creating teams within and across internal and external organizational boundaries. This has spearheaded the transformation of Universities from an teaching institution into one which combines teaching with research (Etzkowitz & Leydesdorff, 2000, p. 118), Etzkowitz, Webster, Gebhardt, and Terra (2000) go even further in claiming that a third role has emerged for universities in aiding the regional and economic development. The triple helix thesis when viewed from a neo institutional perspective creates new way of interacting between actors in a knowledge-based society in an attempt to strengthen innovation potential and economic growth.

Etzkowitz and Leydesdorff (2000) argue that scientific development lays the foundation for future industries. Scientific breakthroughs have sprung a number of technological companies that have grown rapidly over the last few decades with the best example being Google. An important element of the Triple helix model is that it transforms each of the three spheres. The academia add a research element as a core competent. Industry works in concert with the state at a legislative level and in a research capacity with the academia. The state instead governing it participates in the process of governance, developing innovation policies with both institutions and industry (Etzkowitz & Leydesdorff, 1995, 2000).

But realizing cooperation between actors is not something that is easily accomplished or imposed upon actors. Etzkowitz (2008, p. 7) states that a triple helix cooperation is established in several

steps. The first step is amongst the actors that have the most involvement in the innovation processes. As previously stated universities can play an enhanced role in the accumulation and development of knowledge and technology as they can support and assist academic research and development for the government and businesses how where already active in process of innovation. In practice this mostly takes the form of incubators and science parks (Etzkowitz, 2008, p. 7). Next step is the transformation of the roles of different actors, where actors take over each other's roles in the cooperation process (Etzkowitz, 2008, p. 9). For universities this means taking on the role of incubator or research institute developing new technologies for the market.

The triple helix model recognizes three different sorts of spaces, in these spaces must be room in order for regional development to be realized, these spaces are: *knowledge spaces*, *consensus spaces* and *innovation spaces* (Etzkowitz, 2008, p. 77). The knowledge space is the center point of regional development. A region should function as the main hub for research centers to facilitate and stimulate technological innovations that could strengthen regional development. In the consensus space actors collaborate and compromise to realize innovation. It is vital that the actors involved (governments, entrepreneurs and universities) have both the space and time to make plans and appointments. Unanimous decision making is favored as it makes for a strong and firm strategies and thus strengthening regional development. Lastly the innovation space requires an organization that operates in an inventive and innovative manner. It is in this space that the establishment of a triple helix organization is paramount (Etzkowitz, 2008, p. 77).

2.5 Giddens' structuration theory

The *structuration theory* of Giddens (1984) explains how structure is imposed upon actors and how this structure in turn structures the future behavior of these actors via *structuration*. Firstly Giddens (1984, p. 25) defines the concept of structure: "*rules and resources, or sets of transformation relations, organized as properties of social systems*". Secondly Giddens (1984, p. 25) speaks of the concept of *structuration* which he defines as: *Conditions governing the continuity or transmutation of structures, and therefore the reproduction of social systems*. If we look at Giddens (1984) he clarifies his philosophy with the example of language. A language is built up with rules and costumes. When one is to follow these rules and act according to the socially accepted costumes all will fare well. But when one is to deviate from these rules and costumes people confusion might incur. The actor that is subject to structure fails to change the structure while the structure, the language, fails to change the structure of the actor even though they are in fact interacting with each other. This is a perfect example how the EU formulates policies, the rules of the game, for Member States to follow. The European Commission and the advisory bodies which are employed by the Commission constantly monitor the state of the EU, controlling the *structure* and operating in the network of actors as part

of the *social system*. Foray (2007, 2009) and van Ark (2007) explain how the EU will lose its competitive edge when business will continue as usual. They then continue to introduce the concept of smart specialisation and how this will lead Europe back to the top. With adoption of the smart specialisation concept in the Europe 2020, the EU imposes *structure* upon its Member States and regions, the *structure* of smart specialisation. For the EU, funding plays the role as the *resources* which they have to their disposal to further *structure* actors. This *structure* can bring about what Giddens (1984) calls the *accordion effect*, the intended and unintended consequences that come about with the putting into practice of policy by multiple actors. This effect is exactly what smart specialisation is supposed to facilitate, as stated by Marimon and de Graça Carvalho (2008, p. 5) who explain that *“smart specialisation is not achieved through a clever foresight-political process, but by letting ideas, innovations and researchers compete without barriers, in a large, open and fair field”*, the interplay of actors in an open field will lead to a myriad of intend and unintended consequences.

2.6 Structuration and regional development

In this paragraph I will elaborate how structuration pertains to regional development. The three core elements of structuration theory are structure, system and structuration. These three elements can also be identified in regional development. Michael Porter didn't invent a grand theory comprised of new ideas. Rather he explained how regional development was structured and created a model that represented this. In a way Porter discovered the system that structured regional development. If one were to seek a way to improve the economic development for a certain region, then examining the four attributes as presented by Porter would be a good first step. The argument could be made that in the diamond framework governance and innovation isn't explicitly mentioned. The emergence of globalization, the global market and the decreasing relative distances and the technological advancements of the late 20th century are breaks in the system of economic development, changing the dynamic of regional development as a result. Smart Specialisation Strategies incorporate the innovation and governance elements of the triple helix thesis with the four attributes of the diamond framework. The EU recognized that the structure of the economic system had changed, with the adopting of Smart Specialisation Strategies the EU has shown that it is subjected to structuration. To use Giddens' language metaphor once more globalization and technological advancements changed the language that the EU speaks, the EU can chose not to accept these changes and break with the structure or it can adopt these changes by means of structuration. Or as Giddens (1984, p. 25) puts it: *“conditions governing the continuity or transmutation of structures, and therefore the reproduction of social systems”*

the smart specialisation policy serves as the structure element, the structure that is being set out by the Europe 2020 strategy. The decision to adhere Europe 2020 strategy can be viewed as the

structuration element. The diamond itself represents the network of elements, the four attributes as distinguished by Porter. Smart specialisation builds upon these four attributes and adds the attributes of governance and innovation. In the diamond model the government plays a facilitating role, providing the structure as explained above. Rather than only government smart specialisation also incorporates the element of governance. Together they form a system in which reproduced relations are the activities of human agents that are reproduced in time and space (Giddens, 1984, p. 25).

3. Conceptual and operationalization

This chapter will outline the conceptual model as used in this research. The model will be discussed. Following this I will operationalize the model to translate the model into a researchable terms.

3.1. Conceptual model

Regional development is a complex and phenomenon. Development on a regional scale is subjected to several factors. On the one hand regional development is strongly influenced by governmental policy formulated and implemented on different levels, factors which can be regarded as top-down elements. On the other hand regional development is influenced by bottom-up elements such as the existing business structure and the availability of skilled labor. Combining both top-down and bottom-up elements will greatly enhance the potential for regional development.

The theoretic framework has provided two different models that can be applied to regional development. The diamond model of Porter (1990) provides four attributes that determine the competitiveness of a region. These four elements can be found in figure 4. Unlike the diamond model is the triple helix thesis (Etzkowitz & Leydesdorff, 1995) not a model that provides attributes which can be identified within a region. The triple helix thesis introduces a different way of thinking, a model centered around mutually beneficial cooperation between the state, the industry and the academia and thereby stimulating innovative practices. These elements are also integrated into the conceptual model as shown in figure 4.

Smart Specialisation Strategies are meant to stimulate economic growth and innovation. The conceptual model represents Smart Specialisation Strategies, the model combines elements from both the diamond model as the triple helix thesis. At the base of the model there are the three main actors, the government, the knowledge institutions and the business. These three actors work in concert to strengthen the regional economy, to attune the research being conducted with the demands from the market and have better communication between all three actors. Porter' diamond model fails to take two factors into account that this conceptual model has added. The first is the explicit role of innovation, innovation in itself is a goal to strive for and the second is the complex governance structure that the triple helix thesis advocates. This governance structure is symbolized by the triangle of actors, at the heart there are the attributes of Porter centered around innovation, symbolizing the means that the three actors possess to achieve the goals set out by the actors.

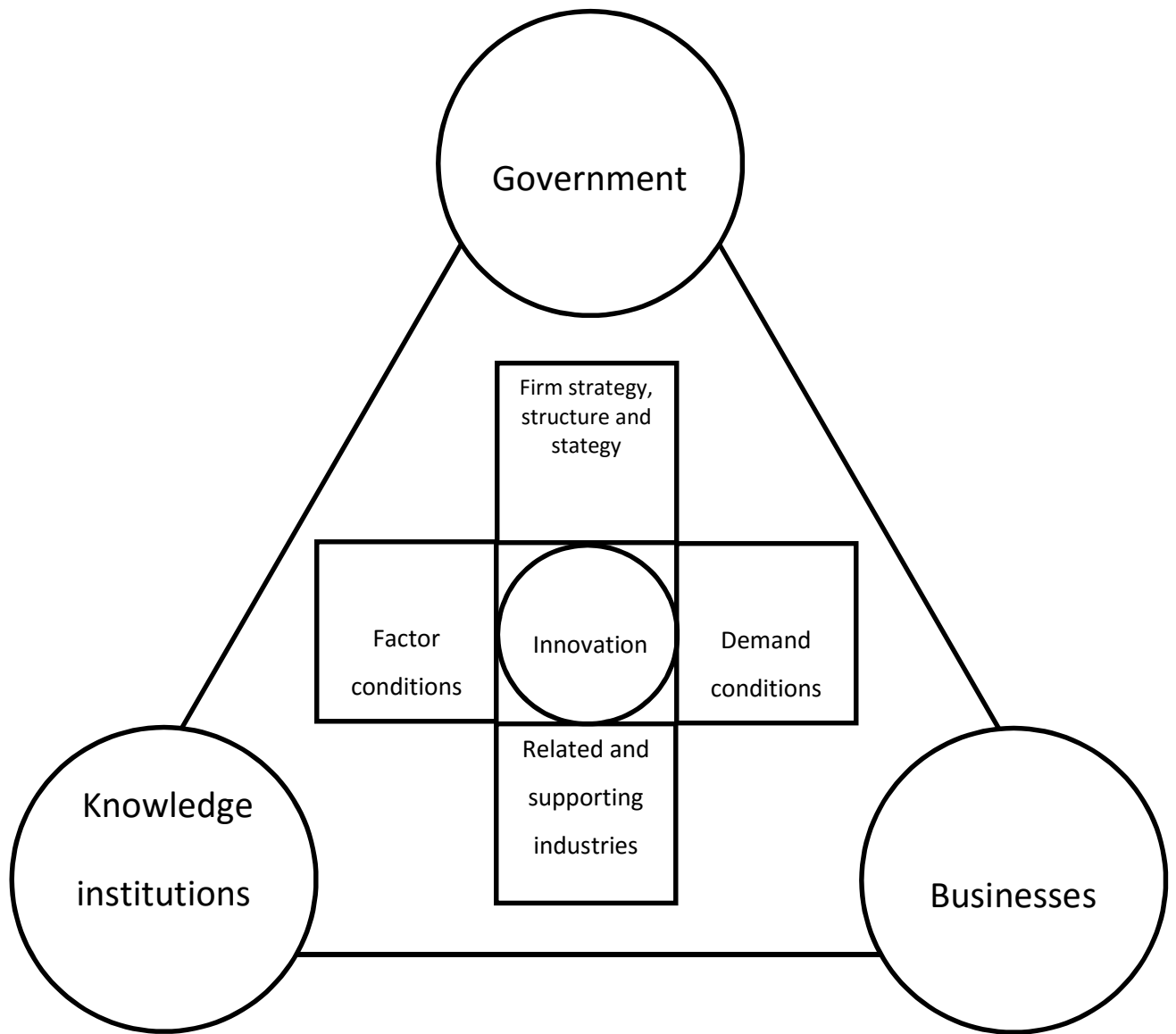


figure 4 conceptual model

3.2. Operationalization

It is imperative to translate the framework into a workable format. This paragraph will give a workable definition of each element within the conceptual model.

The conceptual model provides us with four factors and three actors. The model implies cooperation and therefore these actors can be studied both on their own as in combination with each other. This gives us 28 possible research fields. These research fields are displayed in figure 5, out of the possible 28 combinations this research will look at 25 of them. The three empty fields couldn't be translated into useful indicators for this research.

	Factor conditions	Demand conditions	Related and supporting industries	Firm strategy structure and rivalry
Government				
Businesses				
Knowledge institutions				
Knowledge institutions and businesses				
Knowledge institutions and government				
Government and businesses				
Triple helix cooperation				

figure 5 operationalisation

4. Methodology

This research will be conducted in a dual manner. Firstly by conducting desk research and secondly by conducting in-depth interviews as part of a case study. I will elaborate on how I use both manners of research.

4.1 Desk research

A desk research is a research method that uses existing material that is not directly related to the research object (Pascal Beckers, personal communication, 03-02-2015). I will study the existing body of policy literature both pertaining to smart specialisation as to the FoodValley region, the region which the case study will be based on. I will also explore academic literature to get a deeper understanding of the reasons behind the inception of smart specialisation, the dynamic of regional development and multiple level governance.

4.2 Case study

For the empirical data collection I will conduct qualitative interviews with key actors of in the FoodValley region. This region will be my focus point for my case study. Vennix (2010, p. 103) describes a case study as a research about a contemporary phenomenon that uses multiple forms of evidence to formulate conclusions. (Swanborn, 2013, p. 22) gives six characteristics of a case study:

A case study is about the study of a social phenomenon,

- One or multiple owners of the phenomenon: people, groups, interacting people and groups
- In its natural habitat
- In a fixed period, in which on several moments measurements are being done, or afterwards when information about the developments in that period is being collected
- In which multiple data sources are being used, like documents, interviews and observations
- In which the researcher is focused on a detailed description of stability and the change in numerous variables in order to discover the clarification of processes
- In which these descriptions and clarifications are being tested

These interviews will give an insight into thought process and decision making for the formulation, implementation and evaluation of the RIS3 Oost smart specialisation strategy. Yin (2013) argues that a case study can be beneficial to a research under two certain conditions.

- When the main question is focused on getting to know why or how something is the way it is
- When the researcher has little control on the research situation

These two conditions can certainly be applied to my research and research situation.

The amount of interviews I will be conducting is not clear as of now though the amount must be high enough to be able to draw conclusions. I intend to fully utilize the existing network of actors and will interview actors of all three elements of the triple helix model (see chapter 2.8). I will need to both interview governmental actors on a regional scale (municipalities) as on a higher scale (province) to establish a good basis to analyze the formulation and implementation of RIS3 Oost strategy.

4.3 Interviews

The main source of empiric data for this interview will come from the interviews that I have conducted prior to writing this thesis. I have conducted eight interviews with all actors as present in the triple helix constellation. This means that the respondents are either a governmental actor, a knowledge institution actor or a business actor. The interviews are semi structured. Semi structured interviews use an interview-guide as the main guide line for the interview, this way the interviewer can think about the goal you want to achieve with the interview (Vennix, 2010). At the same time it leaves room to go deeper into an issue or deviate from the interview guide if the interviewer thinks it would be fruitful for the research.

I had a clear image of which actors I wanted interview for my research. Seeing how much of the Food Valley's economic activity has a connection to Wageningen and the Wageningen University in some way or another, I understood that both the Wageningen municipality and the Wageningen University were very interesting actors for my research. Food Valley NL and Region Food Valley are both organizations that facilitate innovation. Food Valley NL as a semi private organization mandated by the province of Gelderland to stimulate and facilitate innovative practices and the Region Food Valley as the embodiment of the RIS3, an organization aimed at stimulating and facilitating innovation and a regional economic approach, they would as well be important actors to interviews. The province of Gelderland, as one of the two provinces that created the OP-Oost suited my. FrieslandCampina as one of the most prominent commercial companies present on the Wageningen Campus. NIZO and the Christian University of Applied Sciences Ede (CHE) are both large knowledge institutions and are both different from The Wageningen University in terms of core activities which increases the diversity in types of actors. All these actors are closely involved with the Smart Specialisation Strategies either through triple helix cooperation or the RIS3 Oost. From these organizations I interviewed the following people:

- Wageningen UR – Petra Claessens - campus development, acquisition and entrepreneurship certification
- Municipality of Wageningen - Michiel Uytden Haag - City Council member of Wageningen

- Region Food Valley – Johan Janssen – Secretary Director
- Food Valley NL – Frances Fortuin – Project Leader ‘Koplopers in Ambitie’
- Province of Gelderland – Robert Haaijk – Program Manager Food
- FrieslandCampina – Ger Willems – Director scientific affairs, location manager R&D
- NIZO – Meike te Griffel – Head of the research department, co-owner
- CHE – Saskia van Helden – Program leader Service, Innovation and Food Valley

4.4 Method of analysis

In this research I will combine desk research with a case study. By method of deductive reasoning (Vennix, 2010, p. 45) I will attempt to come to a conclusion. The conceptual model is derived from the theoretical framework, building upon the works of Porter and Etzkowitz & Leydesdorff.

Deductive reasoning derives a logical conclusion from two premises. The interview data will be coded (Creswell, 2013, p. 63) and analyzed using the same deductive method. I will illustrate this with an example:

- An apple is a fruit
- All fruits grow on trees

And therefore

- Apples grow on trees

5. Case study: FoodValley and S3

This paragraph will give an in-depth overview of the case study area. I will elaborate on the state-of-the-art of Food Valley and I will discuss how the FoodValley fits in to the general smart specialisation strategy for the Eastern part of the Netherlands.

5.1 RIS3 OP-Oost

The FoodValley is a part of a larger strategy set out by Gelderland and Overijssel as part of the RIS3 strategy for the EFRD (European Fund for Regional Development). The Eastern part of the Netherlands is characterized by mosaic of cities of all sizes, ranging from small rural to large metropolitan areas. Like the city pattern Oost is home to both large international companies as to SME (small and medium-sized enterprises) with a lot innovation power. The RIS3 operational program for Oost (East Netherlands) is divided into four main specialisation. With most of them pertaining to a specific region.

- Agro & Food
- Energy- and environment technologies
- Health
- High Tech systems and materials

Even though Oost has the potential to develop into a competitive region there are still areas which the region could improve upon. The OP-Oost (2013, p. 6) points out that the region is positioned in the middle of the pack in many non-sector specific fields such as R&D and the number of researchers. The document further states that compared to the Randstad, Oost has a lower employment- and productivity rate and despite the presence multiple large knowledge institutions, the amount of higher educated people is relatively low.

Oost and its regional actors work together in a triple helix constellation in an effort to achieve smart, inclusive and durable growth. The goal is to enforce the competitive position of Oost, to fully utilize the innovation potential which present within the region. In this process the primary focus lies on valorization. Valorization is the last step in the innovation process, translating scientific research and innovation into commercial usages. Research done at the Wageningen University serves as a prime example of this practice as scientific discoveries made at the university can be directly implemented by the businesses in the region.



Figure 6 The different phases of the innovation process (GO Oost-Nederland, 2013, p. 8)

The innovation process relies on high quality knowledge infrastructure and fundamental / industrial scientific research to ultimately lead to valorization. Oost puts an emphasis on the valorization phase in the innovation chain, the following figure will give insight in the ecosystem for valorization and innovation (GO Oost-Nederland, 2013, p. 8):

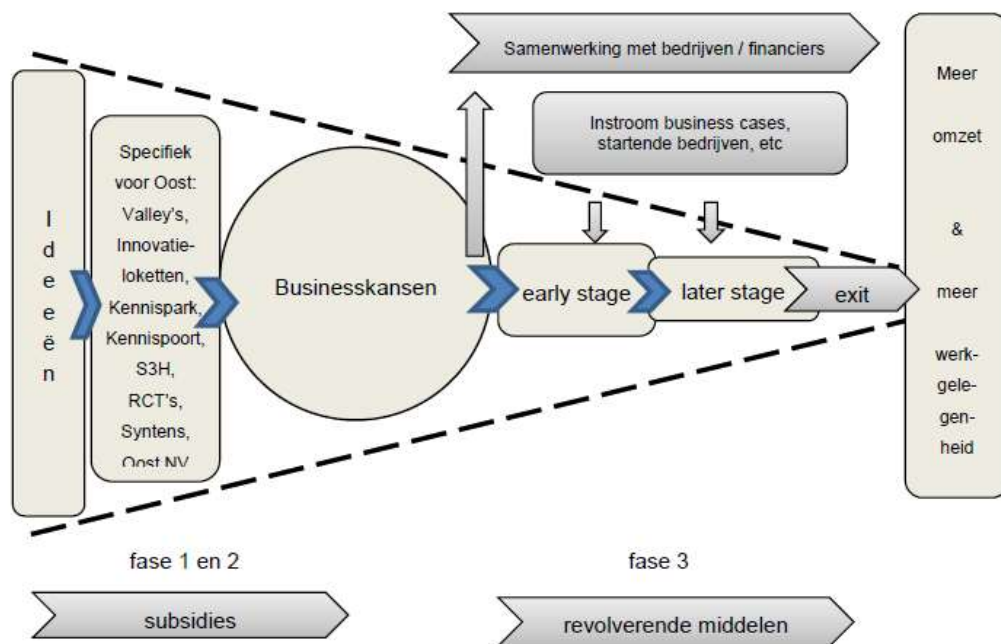


Figure 7 The different stages of the valorization process (GO Oost-Nederland, 2013, p. 8)

The different phases and stages of the innovation and valorization process can be regarded as funneling information from an idea to a concept, to a product.

Regional economy is a core task of the provinces. Oost focusses on the four previously mentioned topsectors Agro & Food, Health, EMT and HTSM. Creativity leads to cross-overs that can improve innovative capabilities. The government in Oost kickstarts the process of cooperation, *roadmapping* and open innovation and supports programs and projects in this field. Oost challenges entrepreneurs to invest in a sustainable, revolving and renewable economy. Entrepreneurs are being supported in

this by governmental funds and European means. Turning ideas into concepts and concepts into business cases is the main focus of the facilitation of the companies. Complementing the valorization process Gelderland and Overijssel made 100 million euros available in investment funds to help business cases get on to the market (GO Oost-Nederland, 2013, p. 10).

In the formulation of the policy all actors of the triple helix were involved, a policy that is influenced by several perspectives. To better connect with the private choices and the willingness to invest, the policy emphasizes business and knowledge institutions as the demand driving actors. It's imperative that infrastructural investments are made available for both education, research and businesses. This will intensify the cooperation within the triple helix, improve the business climate and strengthen the cluster forming (GO Oost-Nederland, 2013, p. 10).

Aside from these four sectors there are more branches of business with great potential to absorb the available information and increase the added value. The region is home to a strong manufacturing industry. There lies potential to increase production processes, renew existing products and get new products on to the market by combining knowledge from the manufacturing industry and the four main sectors. These four sectors are specifically chosen as the regions spearhead. By the presence of regionally strong business and branches of business that have the potential to utilize the available knowledge from the spearhead sectors, added value is being created. The existing innovation infrastructure that is developed within the topsectors can for the most part facilitate this and accelerate the development (GO Oost-Nederland, 2013, p. 11).

Even though large multination companies are present in the region, most of the innovation power can be found in the SME sector. The OP-Oost (2013, p. 11) states that the unique soft innovation-infrastructure is being carried by the private SME business sector. This leads to a high level of involvement of the SME in the product development process.

With the decision to focus on these four sectors Oost aims to stimulate economic growth and create new jobs by improving the ability to innovate and strengthen the global competitive position for the business sector and the knowledge institutions.

With the choice for the four sectors Oost contributes to the economic growth and job availability by (GO Oost-Nederland, 2013, p. 11):

- Increasing the innovative capabilities and improve the global competitive position of the businesses and knowledge institutions
- Coming to solutions for dealing with the big (European) societal challenges (*Grand Societal Challenges*) for instance with innovation in the field of:
 - o Health care

- (food) security
- Continuity and sustainability of available energy
- Demographic developments (such as *Healty Ageing*)

These choices are consistent with the goals as formulated by the European Commission in the Europe2020 policy (Commission, 2010). But achieving economic growth is not possible without cultivating human capital. Slow economic growth can partly be attributed to the scarcity of highly educated people. To be able to compete on the highest level Oost has to profile itself as an attractive region for knowledge workers, provide incoming knowledge workers a good place to settle and give existing knowledge workers the ability to keep growing. To emphasize this the improvement of the (cross border) labor market in the previously mentioned sectors is paramount (GO Oost-Nederland, 2013, p. 11).

For the S3 in Oost to work it's important that they are not limiting themselves to the country borders but also look at all possibilities that lie beyond the nation's border. Transboundary cooperation with NordRhein-Westfalen and other similar European S3-clusters provide ample possibilities. By utilizing each other's knowledge and improving transboundary cross-overs, Oost can bolster its own strengths. A strict divide of Eastern-Netherlands doesn't do justice to the coherence and dynamic that characterizes this part of the country and the connections it has with the areas outside of The Eastern Netherlands. The demarcation needs to be regarded much more from the standpoint of logical economical patterns than from geographical limitations to a part of the country. This means that there has been given attention to spatial concentrations but that the Smart Specialisation Strategies don't identify specific local areas where the development should take place. The Eastern part of the Netherlands is the investment area and the existing clustering provides the foundation for the connections between companies, knowledge institutions and other partners with an important knowledge position. Examples of these connections are the sector Agro & Food (with Zuid and West) and The Red Med Tech Highway from Noord via Oost to Zuid (GO Oost-Nederland, 2013, p. 11).

Innovation isn't easy to predict and therefore the S3 isn't set in stone. Identifying a limited number of innovative spearheads for a longer period of time doesn't do justice to the upcoming specialisations in the coming years. The strategy but namely the derived programs should be able to adapt to the changes in economic and societal circumstances (GO Oost-Nederland, 2013, p. 19).

In the smart specialisation strategy Oost-Nederland entrepreneurs, knowledge institutions and the government give substance to the policy and contribute to a large number of societal challenges by utilizing their own strengths. Their focus is clear. It's also clear that the challenges we face are big. The strategy has left room in the implementation to adapt to societal and economic

changes. The smart specialisation strategy is method that leaves a lot of room for input from companies and knowledge institutions, just like with the topsector policy (GO Oost-Nederland, 2013, p. 19).

Cross-overs

There has been a lot of research pertaining the impact of innovation that comes forth from cross-sector collaboration. This concerns new techniques or the coherent development of existing techniques, aimed at challenges with multiple dimensions. Within the four driving factors the attention goes specifically towards opportunities within intersecting areas of interest. There crossovers can there come to fruition, lead to new products, new services and new solutions. (GO Oost-Nederland, 2013, p. 16)

On the basis of consultations and documentation the following innovation priorities can be identified:

	<i>Health</i>	<i>HTSM</i>	<i>EMT incl. biobased</i>
<i>Agro & Food</i>	<ul style="list-style-type: none"> • Food security • Healthy aging • Relation food and immune system • Relation genes/ microbiota and health • Control of zoönosismes • Alternatives for antibiotics 	<ul style="list-style-type: none"> • Bio-energy • Green gas • LED, sensortechnology • (Green house) materials • Precision argiculture • Robotinizing • Nanotechnologie • Biocomposits 	<ul style="list-style-type: none"> • Biobased / biodegradable economy • Sources biomassa, biomaterials • Reststromen agro as resource for bbe • Waste water / water technology • Bio-energy • Bbe for new cultivating
<i>Health</i>		<ul style="list-style-type: none"> • Red med tech highway • Robotica • Smart and new materials • Microfluidica • Medical imaging • Cyber security 	<ul style="list-style-type: none"> • inside climate • Stand alone solutions • Domotica
<i>HTSM</i>			<ul style="list-style-type: none"> • Smart grids • Biogas from waste water • Sensors • New materials (lighter, stronger, biobased) • Energy storage • Energy generation • Clean transport

Figure 8 innovation priorities through cross-overs(GO Oost-Nederland, 2013, p. 17)

The chemistry, ICT, logistics, creative sectors and manufacturing industries also serve as key enablers to present concepts and solutions that can be used in these spearhead sectors as well as other branches of business (GO Oost-Nederland, 2013, p. 17)

5.2 Operationalization of the smart specialisation strategy Oost

The smart specialization strategy of Oost-Nederland is operationalized by the stakeholders in the region through a series of focus points. For regional governments, implementation of the smart specialisation strategy can lead to different roles.

The smart specialization strategy consists of the following elements (GO Oost-Nederland, 2013, p. 19):

- Stimulating / intensifying of cooperation between governments (including the semi-public sector / health care institutions), businesses and research / education institutions (triple helix or golden triangle) with the goal to work on common societal tasks
- Choosing for a limited number of sectors (Agro & Food, Health, EMT and HTSM) and crossovers
- Supporting the valorization of knowledge
- Stimulating and facilitating open innovation
- Committing a financial instrument adapted to several phases of the innovation process (utilizing of European means among other things)
- Preserving and if need be, reinforcing of existing organizing abilities for innovation.

The GO Oost-Nederland (2013, p. 19) provides several focus points:

- A. The development of adequate financing instruments that are inviting for initiatives that contribute to the goals set out by the S3. Like for instance revolving funds that help businesses cases to valorize knowledge or that simulate energy transition.
- B. Setting up programs that translate this S3 to actions such as Operational Programs for the EFRO and POP3, where the involvement of the triple helix help such programs formulation of measures that will contribute to the S3, particularly to provoke investments by private companies in their innovative power and competitive position.
- C. Actively looking for connection of this S3 with other, existing (European) instruments and means. Hereby taking into account namely the existing instruments that have proven to have a strong connection with private investments, such as financial measures, regional development agencies and innovation contracts.
- D. Contributing to the S3 from different roles for the government, example its role as:
 - i. Innovative contracting authority

- ii. Launching customer
 - iii. Provider of testbeds for applications in the public domain (living labs)
 - iv. Facilitating of conditions, including legislation
 - v. Facilitating of money (financing and grants), in particular for the supporting infrastructure, the facilitating of field labs, living labs, test gardens, etc.
 - vi. Facilitating of regularly gauging of the smart specialization strategy, on basis of consultations and monitoring of data
 - vii. Guarding the coherence between the various programs that contribute to the implementation of the smart specialization strategy
 - viii. Testing to the extent in which instruments actually anticipate the interpretation of combined needs and big societal challenges
 - ix. Using flexible programming mechanisms to be able to quickly adapt to changes economy and upcoming specializations
- E. Stimulating and engaging in collaborations between companies and knowledge institutions in other parts of the country, Nordrhein-Westfalen and with comparable regions within (Central and Eastern) Europe. Specifically looking for connections to regions with equal or comparable choices.

5.3 Demarcation of the area of interest

The bachelor thesis will focus on the RIS3 Oost implementation in the FoodValley region, which is situated in the central part of the Netherlands. The region consists of eight municipalities: Barneveld, Ede, Nijkerk, Renswoude, Rhenen, Scherpenzeel, Veenendaal en Wageningen. The region has 330.000 inhabitants and like many of other economic agglomerations, the region stretches out over multiple provinces as the Western part of the region is Utrecht while the Eastern part of the region belongs to Gelderland (this fact is rather paradoxical as the province of Utrecht in fact belongs to the RIS3 West).

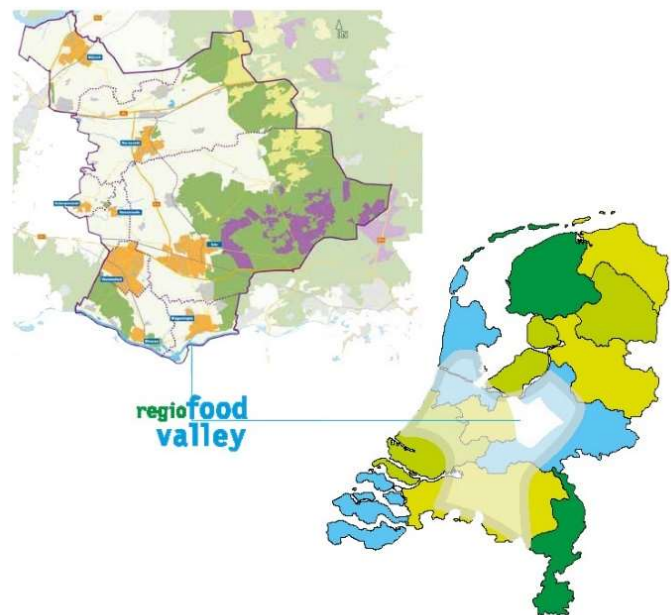


Figure 9 FoodValley region (Regio FoodValley, 2011, p. 6)

The FoodValley region is rich in its agricultural presence. The region is home to some of the biggest agricultural businesses in the Netherlands as well as one of the best agricultural universities in the world in the University of Wageningen. The Wageningen University is quite special as it consists of two separate entities namely the Wageningen University and the Wageningen Research Centre.

Wageningen UR has nine different research institutes:

- Alterra
- Central Veterinary Institute
- Food & Biobased Research
- IMARES
- LEI
- Livestock Research
- Praktijkonderzoek Plant & Omgeving
- Plant Research International
- RIKILT

In 2007 Wageningen UR (further in this document mentioned as Wageningen University) moved to the new Wageningen Campus.

Regio Food Valley is an official trademarked name, as a brand and a region they play the role as facilitator. Their focus lies on both strengthening the competitive position of the region as a breeding ground for new agricultural technologies and research, as on promoting the FoodValley region as a world-class center for agricultural development for the purpose of attracting new businesses. The University of Wageningen acts as the main cog of the machine as a world leading scientific institute.

An important basis for the FoodValley's success is the landscape and its underground. The region is situated between two lateral moraines that stem from the ice age. As a result the valley is characterized by a landscape that features a lot of gradients ranging from high to low, from wet to dry and is being crossed by entangled by a numerous amount of creeks that flow from east to west (Hilhorst & van Beest, 2013, p. 20). It is the cultivating culture of the valley that forms the basis for the food industry. The diverse landscape combined with a wide array of soil types can be seen as an important factor for the accumulation of knowledge and know-how regarding the exploitation of agricultural land. Hilhorst and van Beest (2013, p. 20) state that it wasn't however until the second half of the 19th century that the valley has been heavily cultivated on a grand scale.

In the present day the FoodValley is home to a large and complex network consisting of businesses, governmental bodies and knowledge institutions as outlined in figure 12 (paragraph 5.5). The region

has both the ability to foster and nurture skilled labor as to implement the knowledge and innovation generated by the University of Wageningen in the region with numerous local businesses potentially benefitting from this, improving the competitiveness of the region.

A weak point for the FoodValley is the infrastructure. The infrastructure quality quite differs within the region. The west-east connection is of high quality, it connects the Randstad with Eastern economic agglomerations such as Twente and Arnhem-Nijmegen, as well as Germany. The north-south connection however still has room for improvement as well as the connectivity within the region itself (Hilhorst & van Beest, 2013; van der Heijde & Weijers, 2013). Figure 9 shows the region and how it is situated in the Netherlands while figure 10 gives a close up of the region and the spread of the economic activity in the region.

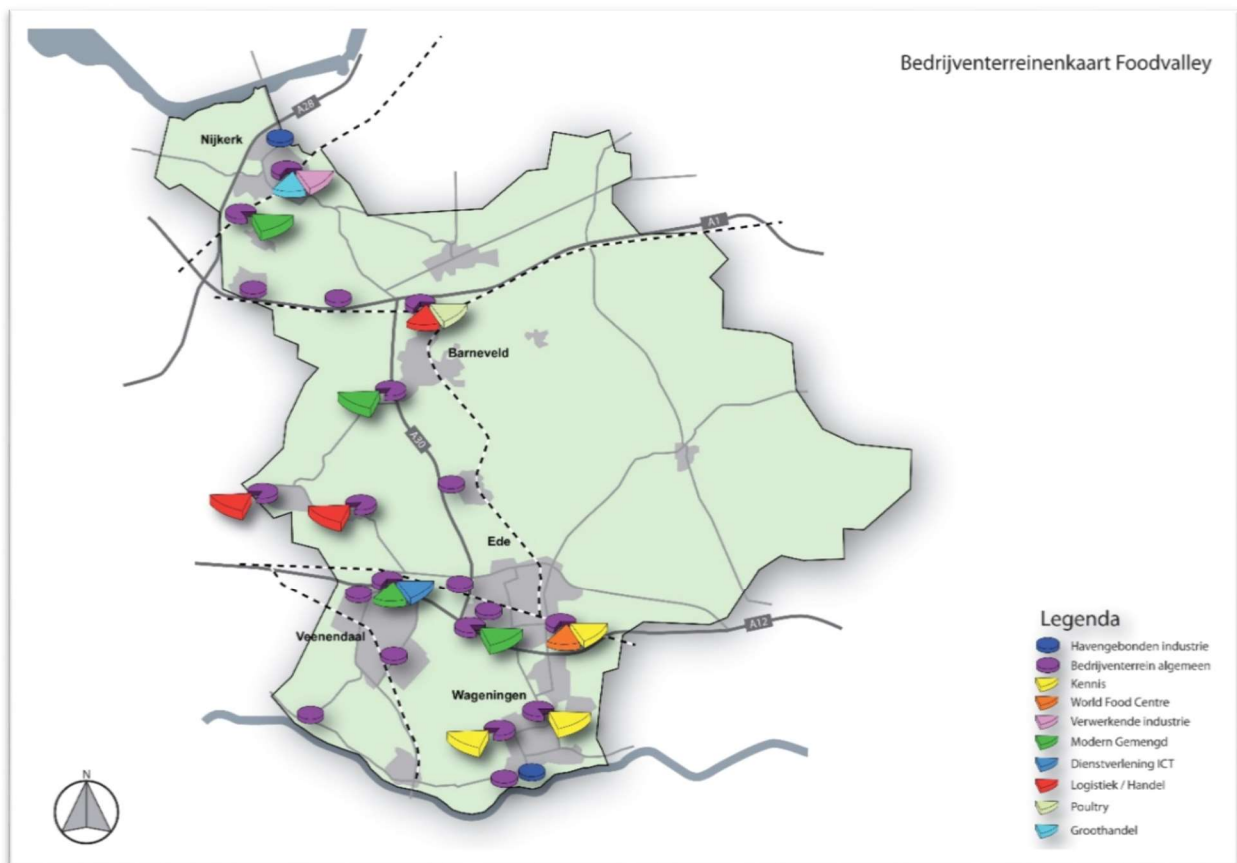


Figure 10 Bedrijvenkaart FoodValley (Regio Food Valley, 2013a)

5.4 The state-of-the-art of the FoodValley

In 2010 a new national innovation policy was adopted, the ‘topsectoren’ policy focused on concentrating economic power and knowledge in key sectors and regions as a strategy to reinforce the competitiveness of the Dutch economy. Rosenthal et al. (2014) conclude that the policy has led to a significant dynamic change within the Dutch economy, facilitating the conversation between parties and collaboration in regard to research and innovation. But the inception of the FoodValley

actually precedes the topsectoren policy. The term FoodValley was first coined in the FoodValley ambitie 2020 report by (BVR adviseurs ruimtelijke ontwikkeling, 2009). This initiative can potentially be viewed as a result of the Pieken in de Delta (Ministerie van Economische Zaken, 2004) policy. This policy outlined the focus upon certain areas and certain fields. The idea behind the policy was to instigate and facilitate the innovation and economic growth within these key strategic regions. The Wageningen region or FoodValley region being one of them.

The FoodValley ambitie 2020 (BVR adviseurs ruimtelijke ontwikkeling, 2009) put forth pillars to build and expand upon and when the economic situation changed the need for collaboration became more apparent, it led to a renewed interest in the FoodValley ambition. The region is deeply imbedded in the Triple Helix model (Etzkowitz & Leydesdorff, 1995). The Eastern part of the Netherlands has a high degree of specialisation in the field of Agro & Food (GO Oost-Nederland, 2013), both businesses as knowledge institutions in the region work closely together. The collaboration between all three elements of the Triple Helix Model (government, businesses and knowledge institutions) served as the prime condition for the FoodValley region Mission Statement (FoodValley region, 2013). The document outlines critical projects and locations within the region as well as overall ambitions. Here are the main pillars:

- Projects In the Wageningen and Ede region
 - o Knowledge axis Wageningen
 - o World Food Centre
 - o Wageningen Campus
 - o Knowledge campus Ede
 - o Center for young entrepreneurship Ede
 - o ExpatCentre Food Valley
 - o Veluwe Poort
- Projects in the Barneveld, Nijkerk and Veenendaal region
 - o ICT-center Veenendaal
 - o Food Production center Nijkerk
 - o Poultry Academy (Campus Barneveld)

In 2013 the FoodValley region released its regional vision (Hilhorst & van Beest, 2013). The regional vision build upon the Strategische agenda (Regio FoodValley, 2011), the Mission Statement of (FoodValley region, 2013) and the MIRT research FoodValley (van der Heijde & Weijers, 2013). The regional vision promotes the exchange of knowledge between both businesses and knowledge institutions and business. The knowledge spin-off is one of the most important elements for the

FoodValley region. The FoodValley possesses all the elements to compete at the highest level. A world leading knowledge institution (WUR Wageningen), a centralized location, a strong economic sector and actors who are willing to working together. But to have a strong business climate the region as to optimize its accessibility. To further strengthen the business climate in the FoodValley region Hilhorst and van Beest (2013) will focus in the coming years on improving the accessibility of the north and south wing of the FoodValley region.

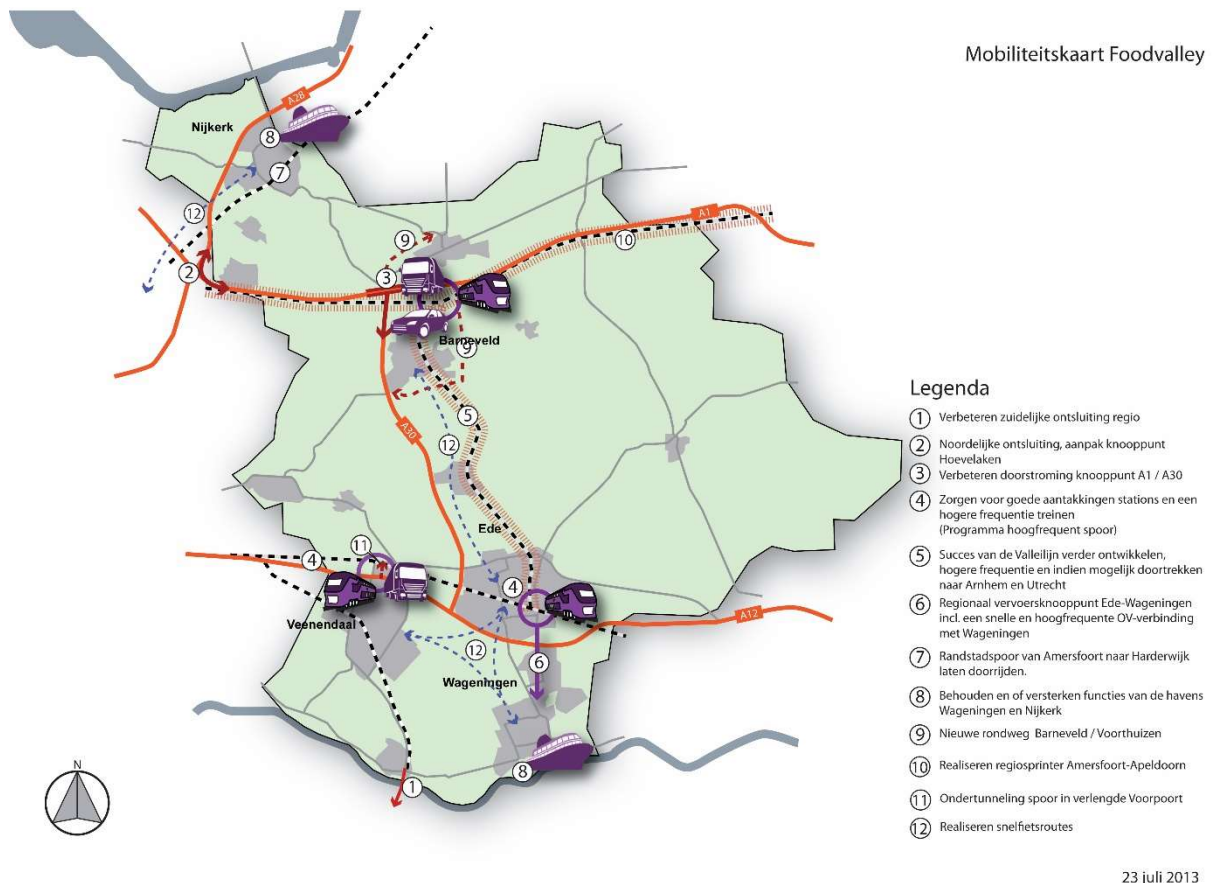


Figure 11 Proposed infrastructural improvements (Regio Food Valley, 2013b)

5.5 The FoodValley concept

Paragraph 5.4 briefly spoke about the inception of the FoodValley concept. In this paragraph I will go into more detail about FoodValley as a concept. In 2011 all councils of the municipalities in the FoodValley region agreed to a strategic agenda for the time period 2011-2015. Later the region council agreed to further developing the ambition publication of 2009, in the Source of the Ambition(Regio Food Valley, 2013c). In December of that year the region council released it regional vision which builds on the Source of the Ambition (Regio Food Valley, 2013c) publication. These documents along with the RIS3 strategy of the eastern part of the Netherlands (GO Oost-Nederland, 2013) form the basis for my bachelor thesis.

The FoodValley region specializes in Agro & Food. The knowledge and expertise in the region is invaluable in creating a world class cluster. This reflects in the Mission Statement as formulated by the FoodValley:

FoodValley is an important breeding ground for the Dutch economy and an inspiring knowledge based region in Europe. Typical for the FoodValley is the trendsetting innovation and expertise in the field of Agro & Food, its attractive business climate and dynamic green surroundings. (FoodValley region, 2013, p. 1) FoodValley aspires to become a strong European topregion in the field of Agro & Food. To realize this goal, it's crucial that the Entrepreneurs, Education and Knowledge institutions and the Government (The three O's) combine their forces and propagate an unified face, message and ambition (FoodValley region, 2013, p. 1).

This ambition stems from multiple factors and circumstances (FoodValley region, 2013, p. 2):

- Sense of urgency: world food problems and the focus on healthy & sustainable.
 - The world population grows considerably and the demand for food rises significantly
 - The realization of the importance of a healthy lifestyle and sustainable food is increasing
 - There is a growing demand for innovation and techniques to help meet these demands
 - There is a leading role for the Netherlands with FoodValley as a geographical center of gravity
- Agro & Food sector is heavily represented in the region and provides international growth opportunities.
 - Agro & Food sector is one of the topsectors of The Netherlands and contributes almost 10% to the National GGP and employment
 - Wageningen UR has international prestige. Intensive collaborating with others knowledge institutions, businesses and governments can increase the efficiency significantly
 - FoodValley is a point of crystallization for innovation and the Agro & Food sector
- A region with an attractive living and business climate and excellent living environment
 - Good infrastructure and accessibility with regard to other (Agro & Food)regions in and outside Gelderland (Noord Brabant among others), Schiphol, Randstad and Ruhr area (road, rail and water)
 - Good balance between rural areas, urban facilities and cultural heritage
 - Plenty of opportunities for living, working, learning and recreating

- International, national and regional recognizability of the region for policy makers, businesses, knowledge institutions and citizens.
- Focus on partnership: 'Coherence is differentiated'
 - The coherence and collaboration within the FoodValley is differentiated. The Mission Statement forms the basis for the collaborations between the three O's. It offers a fundament which partners can fill in in their own way and from their own specific power. Together we work on realization the ambition of the FoodValley.

The Agro & Food sector presents 10% of the total employment in the Eastern part of the Netherlands with the Agro & Food cluster counting a total of 24.253 companies active in the sector providing employment to 126.058 people in 2012. On the national level the sector grosses 48,8 billion euros per year accounting for 25% of the national GDP (GO Oost-Nederland, 2013, p. 25).

The sector isn't however without challenges as the Agro & Food sector is becoming less labor intensive which leads to a loss of jobs in the long run and international competition. The FoodValley however shows promising signs for the future as the recent growth numbers total 2,7% percent (GO Oost-Nederland, 2013, p. 26). The FoodValley is the national crystallization point of knowledge and innovation of the Agro & Food sector. The FoodValley is characterized by a strong concentration of knowledge intensive- and innovation institutions within the sector.

The FoodValley has been active and successful in the Agro & Food sector long before the term FoodValley was coined. Before FoodValley, the region was highlighted as one of the economic centers in the Pieken of the Delta publication (Ministerie van Economische Zaken, 2004). But what drove the region to form a region council and formulate a integral regional vision?

Hilhorst and van Beest (2013, p. 13) state that at a regional level large and important actors such as the Wageningen University, all play a big part in strengthening the regional economy. By presenting a uniform front and having a uniform regional profile, it would allow the region to present itself in much broader and more international fashion. Inhabitants and businesses in the region make the bureaucratic borders of the municipalities much more fluent as many economic processes stretch across multiple cities. All municipalities in the FoodValley region are interconnected as policy changes in one municipality will affect all others as well.

The FoodValley has set goals for various themes which they deem vital. These themes are :

- Facilitating businesses
- Relation education and labor market
- Mobility and accessibility

- Synchronizing the regional housing market
- Innovating the agriculture
- Living environment
- Durability
- Recreation

(Hilhorst & van Beest, 2013, pp. 23,24)

These eight themes all come together in the two main focus points as formulated by Hilhorst and van Beest (2013, p. 25).

- The realizing of a strong regional economy with a differentiating knowledge profile on the world market.
- The realizing of a strong business climate and an attractive living environment.

Building upon these to focus points and themes, four main headlines were identified after further analysis.

- Accomplishing integral knowledge exchange
- Facilitating an business structure which is both optimal and varied
- Water, soil, nature and landscape as leading principle for future spatial developments and pro-actively anticipate climate change.
- Be a leader in the field of invitation-spatial-planning by anchoring and utilizing a 'menu'.

(Hilhorst & van Beest, 2013, p. 25)

One of the main characteristics of the FoodValley is the multiple level knowledge exchange. Figure 12 shows an overview of the knowledge exchange system as used by the FoodValley region. The strong cooperation between knowledge institutions and local businesses creates a breeding pool for agricultural innovation and is one of the core reasons why the FoodValley can be viewed as a world class center.

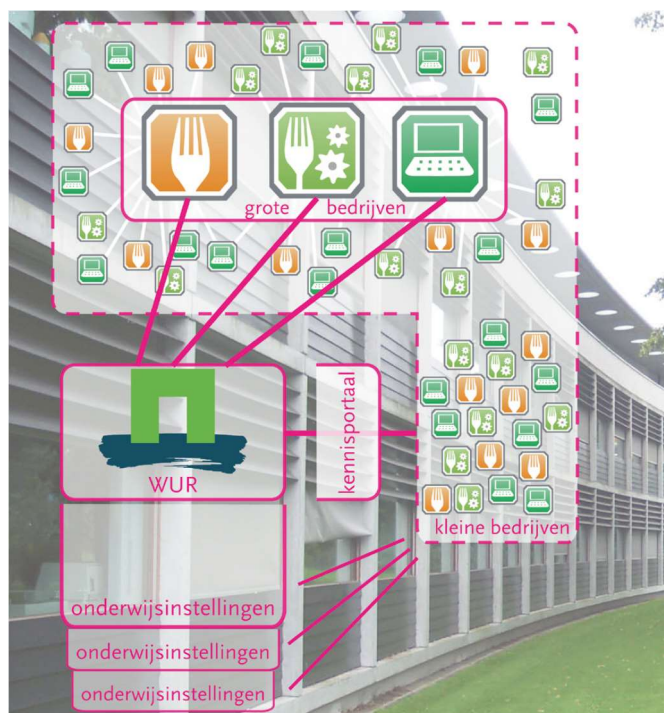


Figure 12 Knowledge exchange at multiple levels in the Food Valley (Hilhorst & van Beest, 2013, p. 30)

6. Implementation of the RIS3 Oost Strategy in the Food Valley

This chapter will provide an analysis of the research on the implementation of the smart specialisation strategy RIS3 Oost in the Food Valley. This chapter will be structured around the operationalization scheme (figure 5). I will discuss how smart specialisation is implemented in the Food Valley and will individually address all permutations of actor combinations within the conceptual model (figure 4). First I will address each actor individually. Then following this I will discuss how each actor works in conjunction with the other two actors pertaining to the implementation of smart specialisation. After I have discussed the roll of each actor or combination of actors, I can fill out the operationalization scheme as present in paragraph 3.2. This analysis will be done on the basis of the RIS3 Oost Strategy as outlined in paragraph 5.1.

6.1 The role of the government

Within smart specialisation there are different implementations throughout the various levels of government. At the highest level the EU and the European Commission are at the heart of all activities related to smart specialisation, as this is where the all policy finds its inception.

On the implementation side however the highest level that should be discussed is the national level. The Dutch national government isn't unfamiliar with smart specialisation. The *Pieken in the Delta* (Ministerie van Economische Zaken, 2004) policy precedes the smart specialisation policy and also focusses on bolstering vital industries and improve innovation. In 2012 the Dutch government published the topsector policy. The policy outlines the importance of cities and clusters, the advantages that clusters and agglomerations bring in terms of efficiency in urban areas and how clusters are more productive, grow harder and have larger innovative capabilities than companies outside urban areas (Raspe, Weterings, Geurden-Slis, & Gessel, 2012, p. 8). The topsector policy emphasizes to strengthen the Dutch competitive position, stemming from the ambition that The Netherlands should belong to one of the strongest knowledge economies in the world (Raspe et al., 2012, p. 9). The policy builds on its predecessor but also tries to improve in certain areas. The *Pieken in the Delta* policy does look at which sectors are important for each region but lacks the knowledge and attention how they relate to each other on the national scale (Raspe et al., 2012). The top sector provides three elements or ingredients as they call it to improve in areas where the *Pieken in the Delta* was lacking. The first element is in which regions the top sectors are concentrated, as regions with a high concentration within a certain sector, like Agro & Food, can potentially be interesting for a national innovation policy. The second element is that a high concentration of companies is mostly interesting to regions if those clusters have a certain *mass*. In this case mass refers to not only the amount of establishments but also the amount of jobs the cluster provides. From a national perspective larger clusters are often more interesting than small clusters because a lot of policies are

aimed towards stimulating, creating or maintaining employment. The third and last element is regional specialisation, if the clusters in regions have a strong specialisations then the regional policy is likely compatible with the national topsector policy (Raspe et al., 2012, p. 10). The topsector Agro & Food (small definition) is concentrated in the Veluwe regions and to lesser extent, Southwest-Gelderland, this can point to a concentration of Agro & Food enterprises centered around Food Valley Wageningen (Raspe et al., 2012, p. 11). Raspe et al. (2012, p. 17) argue that a supraregional vision is necessary for the competitive position of many topsectors. Traditionally regions don't look past their borders when it comes to their policies. Their scope generally reaches till the administrative borders of their region instead of tuning their policy making with the larger context within which they operate. The topsector provides grants and arrangements to stimulate the R&D efforts of companies. Through the MIT program companies can apply for a grant to a maximum of €50.000. *"the arrangement is created in such a way that each company in the topsector that needs funds, and that can also be a company from Veenendaal that can't use the EFRO funds, can knock on the door the national topsector. So we do have created a level playing field* (Program Manager Province of Gelderland, personal communication, 03-06-2015).

The provinces operate below the national level, as outlined in the operational programs of the four regions for RIS3 in the Netherlands, they focus on the pillars that exist within their regions. They are there to facilitate the process of smart specialisation, operating in a more supporting role. They facilitate this process by running various projects with various partners within their regions. Through the process of co-creating and by means of co-financing these projects help stimulate both employment and innovation. The province has a semi-private development agency called OostNV, with this agency the province is able to assist and bring parties together, to find ways to be innovative and stimulate economic growth and activities in the region. One the ways the province of Gelderland is trying to accomplish this is by focusing on improving the business climate, examples of this are the building of a new international school and the realization of an expat desk on the Wageningen University campus *"to help companies to make it easier for expats and take care of their worries, those are things with which you try to improve the business climate"* (Program Manager Province of Gelderland, personal communication, 03-06-2015). On the financial front, the money comes from different sources. There is the national topsector policy that enables companies to apply for grants, there is the European EFRO-program that provides a way for projects to be subsidized.

The municipalities represent the lowest level of government and is therefore the most directly involved with the implementation of smart specialisation. The turning point seems to be around 2011. In that year all the municipalities that are now in the Food Valley signed the agreement to officially form the Region Food Valley. For the implementation of smart specialisation such an

organization has a lot of merit. It helps to present an united front to the outside world, to level the playing field within the region in terms of regulations and making sure businesses land in the area where they have the most chance of success. *“If you organize it a bit tighter and better then it creates more opportunities for economic growth for the entire region”* (City Council member of Wageningen, personal communication, 20-05-2015). By adjusting regulations to be even across all member municipalities it helps to improve the business climate and will improve the economic cohesion in the region as a whole. The director of scientific affairs at FrieslandCampina (personal communication, 11-06-2015) really captures the essence of what smart specialisation is trying to achieve:

“In the context of the food Valley that is of course that you say: why are all those municipalities doing the same?. Look at what your strengths are and build from there. If you give something to your neighbor in a specific area, then he will return the favor and give something for your field, a good trade.”

6.2 The role of knowledge institutions

The Wageningen University is at the heart of the Food Valley region. A lot of the Food identify of the region can in some shape or form be linked back to the presence of the Wageningen University in the region. To illustrate this 70% of the economy of Wageningen is directly or indirectly dependent on the University (City Council member of Wageningen, personal communication, 20-05-2015). But the University is not the only knowledge institution in the region. In Ede you have the Knowledge Axis, which comprises of Christian University of Applied Sciences Ede, Aeres Group, ROC A12 and Het Streek. Both areas can be defined as a campus, even though smart specialisation doesn't explicitly mention the necessity to have campus in order successfully implement smart specialisation, the clustering really helps solidify the identity of region. The traditional role of knowledge institutions such as Universities is to educate people and to provide the region with skilled personal or 'human capital'. If we talk about identity, the identity of Wageningen becomes apparent when we look at the number of students compared to the total inhabitant count of Wageningen, in 2015 the city had 37.786 inhabitants, in that same time period the university had close to 10.000 students (Wageningen University official, personal communication, 12-05-2015). Nearly all of the subjects that are taught at the Wageningen University relate in one way or another to the Agro & Food sector. The Wageningen University provides the region with international credibility.

“I think that because of the fact that there is an University here with a worldwide appeal, network and profile, continuously in the top 3 of the worldwide ranking in the field of research, agrotechnological studies. That leads a lot of international students that want to study here, that

nationally a lot of students apply here and that makes it so that you, as a relative small city, outside of the Randstad, have more facilities that you wouldn't have if the University wouldn't be here"
(Wageningen University official, personal communication, 12-05-2015)

The biggest role of the knowledge institutions when it comes to smart specialisation is the transfer of information, of the knowledge that is researched, discovered and produced at these institutions. One of the ways knowledge is being transferred to the market is with the inception of start-ups and spin-off companies. Here we see the traditional role of knowledge institutions shifting, from an institute that educates people to an institution that actively participates in the market (Adviser Christian University of Applied Sciences, 11-06-2015). Wageningen University as The CHE have programs that gives students the opportunity to discover the possibilities of starting their own enterprise, *entrepreneurial education* (Wageningen University official, personal communication, 12-05-2015).

"We should now also do those things, which we have spoken about, I am talking about guiding starters. That happens both at the University of Applied Sciences in Ede, as in Wageningen, at the University, about how we can learn from each other, how we can make certain courses or boot camps available for both. Those are the things that we have to focus on." (Wageningen University official, personal communication, 12-05-2015)

Universities are the backbone of smart specialisation, they can help turn knowledge into a workable strategy or product. This process of valorization or value creation helps to keep the region competitive by being able to benefit from technological breakthroughs and innovation achieved at the knowledge institutions.

6.3 The role of Businesses

The Food Valley region is home to a wide variety of Agro & Food businesses, each part of the supply chain is represented in the region. The Wageningen Campus is home to the research facilities, this is where research takes place and potentially leads to breakthroughs and valorization. On the other end of the spectrum you have the primary sector, located mainly in the rural parts of the Food Valley region. This wide spread of types of companies results in a region that has both vertical as horizontal business columns. Vertical business columns are businesses operation in the same business column like potato processing companies and cheese producing companies. Horizontal business columns consist of all businesses involved in the process of turning an unrefined product into commercial goods such as raw potatoes into frozen French fries. Director scientific affairs at FrieslandCampina explains why this can be a reason for companies to locate to Wageningen over other locations:

“Of course we have cooperation agreements with Maastricht and Groningen, just to name a few. But then there is a non-illogical choice in Wageningen because there are things happening that we, from the standpoint of our R&D organization, don’t do ourselves. There is also research being done on the subject of like grass. We also participate in research such as that.” (Director scientific affairs FrieslandCampina, personal communication, 11-06-2015)

When companies in the region innovate it can have a trickle-down effect on the entire region, improving the competitive position of those companies and the region itself as a whole. A good example of this is cross-sector innovation. Creating innovation programs and projects that stimulate knowledge valorization, programs which translate knowledge from fundamental research to applicable knowledge by means of applied research and product development.(GO Oost-Nederland, 2013, p. 26). But using each other’s knowledge and promoting cross-overs over the East Netherlands border, can also further improve the strengths of the East Netherlands (GO Oost-Nederland, 2013, p. 12). Connecting the smaller and larger enterprises in the region to innovation brings forth a set of challenges. The ability of companies to reach out and collaborate with other companies isn’t equal. The mental distance to a knowledge institution or big corporations can be an obstacle to people without higher education, where larger companies have personnel on the pay roll for this sort of things, smaller businesses usually don’t. City Council Member Michiel Uytden Haag (personal communication, 20-05-2015) explains that farmers or people that have never been to the university don’t always have an idea how that in practice actually is. And if you then have to imagine how a university actually is and start reasoning with that image in mind, then the question arises how much that image resembles the reality. In the process of smart specialization bridging the gap between knowledge intensive orientated work and labor intensive work and the people associated with the two presents a really big challenge.

Ultimately it are the companies that have to translate innovation to marketable products or services and stimulate economy activity in the region. Facilitating this process or the process of entrepreneurial discovery as its phrased in the smart specialization literature (Foray et al., 2012, p. 13), is vital for a region’s ability to achieve innovation. Facilitating this process doesn’t come down to just the government, the businesses or the knowledge institutions. Instead this process finds its root in the triple helix structure and it is the collaboration between these actors, the combining of different entities that really provides a basis for innovation to grow upon. I will now discuss these combinations more in-depth.

6.4 The cooperation between the government and businesses.

The main task of the government is to facilitate the process of smart specialization, to stimulate and encourage collaborations between companies, related to research and the implementing of innovative products and technologies. When we look at how the government interacts with the market or businesses, there are different types of involvement. The involvement happens on multiple levels. The focus differs between the national, regional and municipal level. The further down the line you go, the more directly involved the government is. Where on the national level the government mainly tries to facilitate and stimulate innovative processes, for instance by creating a topsector policy, on a municipal and provincial level you see the government being much more embedded and actively participating in the smart specialisation process. This is for instance done through the inception of the Valley bureaus throughout different regions on the country. The Food Valley Region is one of these Valley bureaus. The government provides them with financial means and instruments to help kick start and stimulate innovation. The Food Valley Region gives the municipalities of the Food Valley a forum to coordinate all efforts concerning smart specialization, a reference point where governments, institutions, companies and people alike can turn to regarding everything concerning smart specialization.

For the business side there exists a similar type of organization, this organization is called Food Valley NL, an organization that aims to contribute to improving the innovative power of Dutch (food related) companies. The name however can lead to some glaring misconceptions as Food Valley NL, doesn't refer to the Food Valley itself but to the country as a whole. Project Manager of Food Valley NL, Francis Fortuin (personal communication, 27-05-2015) explains that:

"We are independent, an independent party but this is still the hub for the entire Dutch Agro & Food innovation area and which, of course, is partly due to the fact that here are an incredible amount of knowledge workers present. Which in turn also have partners that are knowledge workers. That makes it so that here you just have a large amount of minds present to come up with smart ideas and smart solutions. To really find a smart region, to be at the center that, the companies that we serve, are partly, in and around Wageningen or innovation centers."

(..)

"The point of condensation really is in fact here, in a rather small area in Wageningen but that covers and works for a region that is about the same size as Silicon Valley, which is about the size of The Netherlands"

It represents a sentiment that has become clear throughout the course of the interviews. There is a clear difference between the boundaries of the legislative region of Gelderland-Overijssel, the region

that is eligible for EFRO funds through the RIS3 policy and the Agro & Food sector in The Netherlands, and the concentration of the Food sector as a whole. The size of the Agro & Food sector in The Netherlands is pretty significant, and several other regions also have a strong Agro & Food presence.

“Partly that has historically grown, because why we for instance are so good at seed enrichment is only because of the fact that, and that is located much more in the Western part of the country, the conditions were in such a way that they had to travel over water to reach the auctions and because of that they couldn’t bring a lot of products. This way they could still make a profit.” (Project Manager of Food Valley NL, personal communication, 27-05-2015)

Robert Haaijk, project manager Agro & Food at the Province of Gelderland explains that: *“we give Food Valley NL the space to also be active outside the region border and as a member actually help support those companies throughout the entire Netherlands and also outside of that, they also have foreign members.”* (personal communication, 03-06-2015)

Both organizations are integral to the implementation of the RIS3 strategy. Facilitating and stimulating innovation is at the heart of the RIS3 strategy. I have identified three main components to this process. The first component is the financial aspect, innovation isn’t something that can be achieved with relative ease or without risks. Financial incentives alleviate the financial burden of the required investments and incentivize companies to participate in risky innovation projects. Though companies ultimately should invest, grants can be an extra boon but you shouldn’t focus on that too much (Project Manager of Food Valley NL, personal communication, 27-05-2015). There are several sources which companies can turn to get funding for innovative practices. The EFRO fund represents the European source, companies in the Gelderland-Overijssel region can apply for funding. These applications aren’t for individual companies but are done by a consortium of companies. There are also checks and balances in place to prevent big companies from taking advantage of their size compared to smaller companies when it comes to the distribution of the EFRO funds.

“If you want to be eligible for EFRO funding, then you need to have a consortium of parties. And it has been decided that a certain percentage of this has to be SME.” (Program Manager Province of Gelderland, personal communication, 03-06-2015)

The second component is the availability and flow of information. An integral part of the smart specialization strategy set out by the Food Valley Region is multi-level knowledge exchange. To make sure that the knowledge that is being produced in the region is available to all parties that are interesting in it. Connecting the SME’s in the region to smart specialisation is an important part of how successful the strategy will be as a whole. Innovating to overcome local disadvantages is better

than outsourcing (Porter, 1990, p. 92) so by incentivizing the decision to partake in innovation projects both the competitiveness of those companies as the regional economy as a whole will potentially be bolstered. For example knowing where to turn to for funding or for collaboration contacts isn't always the easy. Neither is knowing where to turn to.

“Actually there is too much facilitation, in the sense that people don't understand anymore where they have to go to. There are too many information desks. The conclusion was to use half of the information desks and give them double the resources to help people.” (Director scientific affairs FrieslandCampina, personal communication, 11-06-2015)

These information desks have to be easy to find and need to have the proper resources to help those who come to them. Food Valley NL plays a vital role in helping companies in the process of achieving innovation. The 'Koplopers in Ambitie' is an example of a subsidies program that helps companies become smarter and kickstart innovation.

The third component is creating a strong business climate. A strong business climate or building towards a stronger business climate helps attract economic activity. Before the Regio Food Valley was established the business climate in the region suffered from a few things. Municipalities weren't working together to help make the region stronger but instead the myriad of different rules and regulations across all municipalities created a situation where it had a negative impact on the business climate. Project Manager at Food Valley NL Francis Fortuin (personal communication, 27-05-2015) explains that they initiated a meeting between all involved municipalities by arguing that they at the very least could make sure that they were on the same line regarding establishment conditions, establishment policy and environmental permits. Presenting a united front and having a unified message is important to not lose business to other regions.

“On the other side I think boys, you should organize that a bit more efficient and you have to look out that if you are trying to compete against each other that Germany or Belgium won't run off with the contract.” (Director scientific affairs FrieslandCampina, personal communication, 11-06-2015)

From the interviews it became apparent that there was a tangible difference between before and after the founding of the Region Food Valley partnership. The inception of the Food Valley Region has vastly improved the cooperation within the region, stream lined the process of cooperation and started the search for a more focused regional economic strategy.

“The realization, that has really made a step forwards. Clear role distribution, who is from what, chairmanship for instance for Ede. Then you see that a city council member economy suddenly also starts looking at how we can give substance to that governance. A Strategic agenda that on the other

hand analyses that guys you are operating to fragmented, we valorize too little, so show where the room for improvement is. I see it like, we are in the starting blocks to make something of it again.”
(Personal communication, Adviser Christian University of Applied Sciences, 11-06-2015).

With the municipalities working more in sync with each other the entire region benefits from the exposure that the name Food Valley offers. When companies want to move to the Food Valley it is paramount that they land in the correct environment. Knowledge intensive companies are directed towards any of the campuses or any of the industrial area's like the World Food Campus in Ede. The government plays an important role in this process. Program Manager Agro & Food of the Province of Gelderland Robert Haaijk (personal communication, 03-06-2015) explains that *Its about emphasizing to companies which different options are available, to have a facilitating role and show what's out there, on the basis of that a company can make a choice between several locations that they are eying.*

A good business climate isn't only about legislation and procedures, a different way how The Province of Gelderland is trying to improve things is to make sure everything is as easy as possible for potential foreign knowledge workers. From establishing a expat desk at the Wageningen University to alleviate the burden of navigating the bureaucratic maze that comes with moving to a new country to building a new international school for the children of expats, The Province of Gelderland is trying their best to make living and working in Gelderland as attractive as possible.

6.5 The cooperation between the knowledge institutions and the government

The cooperation between the knowledge institutions and the government is an integral part of smart specialisation. The knowledge institutions give the region the legitimacy in their claim and aspiration to be a competitive region. The Food Valley is no different, The Wageningen University is at the heart of the region. As such The Wageningen University is closely involved with municipalities in the region.

“If you look at the understanding, that we have, twice a year at the board of directors. 70% of our economy is directly or indirectly dependent on the University. So I dare to stipulate, if I also hear from the other municipalities, that the connection with the University is a very intense one. So also with these sort of things, if you speak to those type of people, that are very short lines. Right up to the board of directors of the University, so not only formally but also administrative. “

(City Council member of Wageningen, personal communication, 20-05-2015)

These lines represent the network that is spread out through the entire region. The University collaborates with a lot of different parties in the region in different ways. It's not a coincidence that The Wageningen University is featured prominently in the first publication regarding a Food Valley

(BVR adviseurs ruimtelijke ontwikkeling, 2009). But The Wageningen University isn't the only knowledge institution that is involved in this process. Prominent members of the ROC A12 and NIZO are on the board of the Food Valley Region. The collaboration between knowledge institutions and the government are an important tool to connect the ambitions of the region with the focus and orientation of the knowledge institutions. That's why the other knowledge institutions such NIZO and ROC A12 (representing the Knowledgecampus Ede) are also represented in the board of the Region Food Valley.

Knowledge institutions and the government mainly interact in two different ways.

Firstly they have an intensive working relationship regarding acquisition. A part of the regional cooperation is to make sure companies land in the correct environment. The region is comprised of a few parts and the type of companies that land in each part signifies that. The Knowledge Axis is the brain of the region, the knowledge institutions are located here and as such knowledge intensive companies are directed to this part of the region. The outer ring represents the production heart of the region, labor intensive orientated companies are therefore directed to this part of the region. This way all parties in the region benefit.

Secondly providing funding for research is one of the main ways how the government can stimulate innovation. Minister of Economic Affairs Kamp (2014) perfectly captures the essence of the importance of knowledge and innovation for The Netherlands:

"The Netherlands is dependent of knowledge and innovation. Our country doesn't have a surplus of resources and our earth gas reserves will in time run out. Our country doesn't know massaproductie based on low wages. The most important motor for our economy is therefore knowledge, knowledge and knowledge."

In 2013 Dutch scientist acquired the most amount of funding from the EU per capita of any EU country. An example of this is the Plant Power Project, a project that researches how to turn plants into a clean and renewable energy source (Kamp, 2014). The Wageningen University also does research directly for the Department of Economic Affairs. The Knowledge Basis research focusses on the laying a foundation for the knowledge that will be relevant for all policy areas pertaining to the Department of Economic Affairs in three to five years. So it's both in the Region as the Universities best interest to invest in research and keep working towards ground breaking research that can lead to innovation.

6.6 The cooperation between knowledge institutions and businesses

The Campus in Wageningen has considerably grown from what it was years ago. Where the University was located throughout the entire city in past days, now the entire institution is located on the campus. This sparked two different trends. On the one hand R&D departments of companies moved to the Campus. This allowed them to be in close proximity to the innovation, being able to benefit from the human capital that the University has in abundance and improve the working relationship with both other companies and the University. Porter (1990, p. 90) argues that companies can also speed up innovation by putting their headquarters and other key operations where there are concentrations of sophisticated buyers, important suppliers or specialized factor-creating mechanisms, such as universities or laboratories.

On the other hand the University left a great number of state of the art laboratories throughout the city, allowing for SME and start-up companies to be able to have access to these kinds of facilities without having to pay for the costs of those facilities themselves.

The role of University has started to shift away from the traditional role of educating people to a knowledge institution that not only does fundamental research but are also focused on valorization of research.

Wageningen University official Petra Claessens (personal communication, 12-05-2015) explains:

“Gaining new insights and knowledge is the public role of a University, but on the other hand that is also the revenue stream the university or of a knowledge institution. So if you look at how valorization happens, value creation at Wageningen UR, then that happens in a multitude of ways, we for example do a lot of collaboration projects”.

The changing paradigm of what the role of an university is also affects the type of education that students get at the university or that they have access to. The Wageningen UR and The CHE both offer courses aimed at stimulating entrepreneurial education. The idea that students aren't only educated in a technical and a technological way but that a few students are also able to choose a minor or major in the field of entrepreneurship and are trained to start their own company with the technical knowledge that they have gained (Wageningen University Official, personal communication, 12-05-2015). There are some notable examples of companies that find their inception closely linked to the University such as Knowles and Medioconsult. These companies are able to use the facilities that the University left behind in Wageningen when it relocated to the campus though some facilities are actually located at the companies themselves with which researchers make use of each-others facilities (Wageningen University Official, personal communication, 12-05-2015). Incubators are a different way of facilitating start-ups. The Campus Plus Ultra building at the Wageningen Campus gives start-up companies the ability to grow and

develop themselves. Here they have all the facilities and tools they need to achieve growth and innovation.

Human capital is an important aspect in order for smart specialisation to work, in the Food Valley knowledge institutions collaborate with each other on the subject of education and R&D, how to improve the connection between the various levels of education, how to adjust the various information decks to have them better integrate with each other. Finding a connection with the companies in the region is a high priority on the agenda according to Wageningen University Official Petra Claessens (personal communication, 12-05-2015) *“at the moment I see a lot of people trying to find each other and people are really working on trying to integrate with each other more effectively so that companies in the region can also go there and find each other”*.

Knowledge exchange is vital for innovation but knowing where to obtain that knowledge or what developments are out there isn't all that easy for everybody. To facilitate that The Wageningen University organizes inspiration days, here the University gives scientists a forum to present their research findings and their innovations and leads to cross pollination between the knowledge institutions and the businesses. The Wageningen University also organizes potato demo days where farmers and scientists come together. These are all examples of value creation.

“Our researchers often hold lectures at branch organizations or class rooms throughout the country, value creation. Something that is being used more often is The Wageningen Dialog. How can we make it possible to talk about the societal, well controversial themes, that pertain to the research domain, such as GMO's, sustainability and that sort of things and highlight the different sides, that is also value creation”. (Wageningen University Official, personal communication, 12-05-2015)

Connecting smaller businesses to innovation and successfully launching new products is something that can be difficult, people might not be familiar with the latest researches or the distance to ask for help at a big institution such as The Wageningen University can be daunting. Food Valley NL has introduced something they call 'services innovation', with their program Hello Market they offer help to entrepreneurs from Gelderland find smart solutions to their problems.

But the best embodiment of smart specialisation in the Food Valley is probably NIZO. NIZO is a private research company that works directly for the market. As they work directly for the market, all of their research is funded by the companies they work for. It is their job to provide food related innovation for their clients. Despite being a private research company they have strong ties with The Wageningen University.

“We have quite a lot of students here, that come to graduate research here, their master thesis or that come and work here for a year or a half year. That way we can see if they are good people and if we eventually want to hire them. The same goes for PHD’s, we also have projects where our people work as mentors or we have a few people detached at other universities and that we can keep an eye out where the good people are and are we able to eventually hire them.”

(NIZO executive ,personal communication, 12-06-2015)

Like the Wageningen Campus and The Knowledge Campus Ede, NIZO is also working towards creating a sort of campus on their premises. Time sharing their facilities allows them to save costs and gives SME’s the opportunity to use facilities they otherwise wouldn’t have access to.

6.7 The cooperation in a triple helix

The previous paragraphs outlined the role of the various actors and how they interact within the triple helix construct. Now I will talk a bit more in-depth about the how all three actors cooperate together within the triangle. Within the Food Valley region most cooperation between all three actors exists within the administrative sphere. Through the Region Food Valley bureau the actors have a forum to come together and work together to make the region successful. Making sure everybody is on the same page is important for the cohesion of the region. The government plays a facilitating role in this process because eventually it are the entrepreneurs and the knowledge institutions that have to do it together. You really need parties for togetherness and in togetherness lies the power (Program Manager Province of Gelderland, personal communication, 03-06-2015).

Why is a regional approach so important? For a lot of companies and knowledge institutions such as FrieslandCampina, Wageningen UR and NIZO a lot of their partners or clients aren’t necessarily based locally. But if you really want to get more benefit out of the close proximity and the fact that you are all working in complementary domains, and put some energy in to it then there is really something to gain. For example a ICT/food crossover day with entrepreneurs from Veenendaal. Entrepreneurs from a different domain are actively looking for something like that and such a regional approach and the organizing of such meetings can be really helpful to help kickstart a triple helix. You have voucher for those kinds of things, to help stimulate that and thus that is the area where we can make the most progress (Wageningen University Official, personal communication, 12-05-2015).

Presenting an unified and collective image to the outside world is also an important part of the triple helix cooperation. The Wageningen University name is synonymous to the Food Valley region in a lot of ways. To have you region connected with such a recognizable name will elevate the relevance of

the region as a whole. An example how this can be bolstered is the expose of the Food Valley in the corridors of the European Parliament meant to raise awareness for the region.

“Strikingly by the way is that in Europe both with functionaries as with parliamentarians, that because we use the name of the University and use the name of the Region Food Valley, then our name doesn’t work that bad, are quite well known. Not well known enough, because it can never be enough. That is what we invest in.”

(The Secretary-Director of the Food Valley Region, personal communication)

6.8 The implementation of the RIS3 OP-Oost in The Food Valley Region

Now that I have discussed the implementation of the RIS3 OP-Oost, I have discussed the roles of each individual actor and how the cooperation is between the actors, to properly weigh and value the roles of each actor I refer back to the operationalization scheme of paragraph 3.2. In this paragraph I will fill in the operationalization scheme and discuss the roles of each actor:

	Factor conditions	Demand conditions	Related and supporting industries	Firm strategy structure and rivalry
Businesses	<ul style="list-style-type: none"> - natural resources for the primary sector -innovation clusters (R&D) 	<ul style="list-style-type: none"> -The demand for Agro & Food innovation -The demand for food production 	<ul style="list-style-type: none"> -Knowledge institutions -Complementary businesses in the same sector -Spin-off companies and incubators -Cross-overs (ICT sector in Veenendaal) 	<ul style="list-style-type: none"> -Valorization of researched knowledge -Facility sharing to reduce costs -Campus development to improve cross pollination between companies -Using the network of Food Valley NL and Region Food Valley
Government	<ul style="list-style-type: none"> -Financial means in the form of EFRO funding, grants from the government (topsector) and 	<ul style="list-style-type: none"> -Improving infrastructure -Attracting foreign knowledge workers 	<ul style="list-style-type: none"> -Improving the business climate to attract new parties 	<ul style="list-style-type: none"> -Becoming the world leading region in the domain of food research -Making life as easy as possible for expats with services like the expat

	provincial vouchers. -Business climate			desk and the new international school -Better coordination between municipalities regarding establishing regulations
Knowledge institutions	-Human capital -Wageningen Campus -Knowledge Campus Ede -Knowledge Axis -Facility sharing -Wageningen Ultra Plus	-Demand for Agro & Food orientated research and the valorization of knowledge	Knowledge institutions in the region and R&D labs from companies	Providing the region with highly skilled labor, offering facilities and programs to students who want to start their own business.
Businesses and Government	-Financial means in the form of EFRO funding, grants from the government (topsector) and provincial vouchers -Business climate	-Demand for financial means by companies in the Food Valley -Demand for innovation stimulating companies like Food Valley NL	-Cross-overs with local businesses from different sectors -Agro & Food related companies that operate in different stages of the supply chain -Food Valley NL society network	-Information decks to support businesses in their ability to innovate -Connecting SME's with innovation -Making the region attractive for companies and for knowledge workers to settle
Businesses and Knowledge Institutions	-The presence of campuses to stimulate innovation and cross-overs -Spin-off and incubator possibilities	-Valorization of knowledge -Academic spin-offs and incubators -Multi level knowledge exchange	-Start-ups and spin offs -R&D labs on the Wageningen Campus	-Stimulating entrepreneurial education -Providing places to intern or to do graduating research -Facilitating start-up companies and spin-offs

				-Organizing inspiration days and organizing demo days -Better integration of education and the market
Government and Knowledge Institutions	-Clustering of knowledge institutions in the Knowledge Axis	-Human capital	-Cooperation between all knowledge institutions in the region	-Better integration between all levels of education -Cooperation regarding acquisition to make sure companies land in the correct environment
Triple helix cooperation	-The Region Food Valley	-Demand for better coordination throughout the triple helix -A legitimate entity to achieve this coordination	-Other valley bureaus outside the region.	-International profiling and improving recognition -Bolstering innovation by connecting companies and knowledge institutions -Providing a forum where any one can voice their concerns or present their wishes.

Figure 13 operationalization scheme

Figure 13 gives a clear overview of the activity in the Food Valley region. Now I can answer the question what the role is of each actor in the implementation of the RIS3 Oost strategy. A good starting point would be to begin with the RIS3 Oost strategy. This strategy hinges on four separate pillars: Agro & Food , Energy- and environment technologies, Health and High Tech systems and materials (GO Oost-Nederland, 2013). As the name implies the Food Valley focusses on the Agro & Food sector. Why to choose for this specialization in the Ede and Wageningen region becomes evident when you look at the types of companies that are located in the region and by the presence of the Wageningen University. The region has a longstanding tradition in the embeddedness in the

Agro & Food sector. This longstanding tradition has a few consequences. Firstly it made it so that the region had already specialized in a certain area and secondly the cooperation in the region already existed before the inception of the smart specialization policy. The smart specialization policy and the RIS3 Oost however gave the municipalities a forum or an entity to bundle that cooperation and have legitimate basis to operate. It made it possible to better coordinate the bureaucratic web of policies and regulations that existed between the municipalities, for instance with regard to the establishment regulations for companies. The Region Food Valley incorporates and involves all parties in the region. Here knowledge institutions, companies and government come together to work towards a singular goal: turning the region into a world-class center for Agro & Food. The Wageningen University the spill in this process, it is their existence that gives the region their credibility to be a world leading region. The institution is involved in every part of the smart specialisation process, from the administrative cooperation with the government, to valorizing the knowledge that is gained from scientific research in collaboration with R&D labs from companies in the region to providing the region with skilled labor and making sure that the region will be able to sustain the high rate of research and innovation that is being done in the Food Valley. Through the means of multi-level knowledge exchange all the knowledge that is being researched and gained at the University and other knowledge institutions makes its way into the region and to the companies. Food Valley NL helps companies navigate the maze of connections that exist to achieve innovation. They connect companies with each other and help kick start the innovation. The role of the government is much more facilitative and they try to help companies in their wish to innovate, this can be through financial means or by means of subsidizing a company like Food Valley NL. Smart specialization lives and breathes in the Food Valley, the cooperation between all actors is fluid and active. The reliance upon a big player such as the Wageningen University makes this process even more important. Smart specialisation already existed in the region before the policy itself was adopted, this becomes evident by the Food Valley ambition 2020 document (BVR adviseurs ruimtelijke ontwikkeling, 2009) that precedes the smart specialisation policy by two years.

7. Conclusion

This chapter will present the conclusions that can be drawn based on my research. It will try and answer each main and sub questions. Furthermore this chapter will provide critical reflection on the writing process and provide suggestive areas for future research.

7.1 Conclusions

The main question of this research was as follows:

“What is the state-of-the-art of the formulation and implementation of Smart Specialisation Strategies in the FoodValley region, what are the roles of the various actors that are involved in this process?”

Before I can formulate a good answer to my main research question it is imperative that I first answer my sub questions.

The first sub question was:

“What is the context of Smart Specialisation Strategies in the existing multi-level governance framework in the European Union?”

As the term multi-level governance implies the framework has multiple layers. At the top we have the European Union. In this framework all EU concepts, such as Smart Specialisation Strategies, are there for also at top as well. Within the framework there are several actors involved with the implementation of the Smart Specialisation Strategies. The actors are layered from a supra national level to the municipal level. The European Union represents the top layer. The future goals of the European Union and how to achieve those goals are described in the Europe 2020 policy. Smart Specialisation Strategies is one of the methods with which the European Union aims to use to achieve these goals. In this strategy each member state is divided up into separate regions, these regions need to compose a strategy document outlining how there are going to implement these Smart Specialisation Strategies if they want to be eligible to receive European funds for regional development. The second layer are the members, in this case The Netherlands. Many member states already had a national strategy in line with Smart Specialisation, like Pieken in de Delta in the Netherlands. Smart Specialisation gives a good outline for innovation policy. In line with the Europe 2020 strategy, the Dutch Top Sector policy outlines certain sectors as integral to the country's competitive position, a group of these sectors represent the focus point of the Dutch Smart Specialisation Strategies. The subdivisions within each member state represent the third layer. For the Smart Specialisation policy, the Netherlands is divided into four regions, North, South, East and West. Each of those regions have composed their own Research and Innovation Strategy for Smart

Specialisations (RIS3), outlining on what sectors the region will focus. For the East of the Netherlands, this is the 'Operationeel Programma EFRO Oost-Nederland'. The document presents the four sectors which the region will focus on and how these sectors overlap and present innovation opportunities. Going further down the line specific sectors with a geographical origin or clustering are bundled into Valley's like Food Valley and Health Valley. These sub regions are the fourth layer in the framework. These Valley regions are the bundled of municipalities, businesses and knowledge institutions within the sub region working together in order to implement the RIS3 Oost Strategy. The fifth and final layer of governance, is that of the municipalities. In this layer the RIS3 Oost Strategy is being facilitated by the municipalities by creating conditions for the implementation of the Strategy, such as improving the living and business climate.

The second sub question was:

"How is the Smart Specialisation Strategy RIS3 Oost formulated and how does this reflect the intended goals and motivations for the FoodValley region?"

The Europe 2020 policy has provided a certain set off goals that are structuring the choices that Oost-Nederland. Whatever policy the region decides to go with it has to contribute to 'smart, sustainable and inclusive growth'. The OP Strategy of Oost is based on four pillars that represent the specialisations which the region is focusing on. These specialisations are mostly tied to specific geographic sub regions with Oost. The following specialisation are being focused on in Oost-Nederland:

- Agro & Food
- Energy- and environment technologies
- Health
- High Tech systems and materials

The S3 is Oost focusses on a number of things, which in turn should reflect the intended goals and motivations as outlined in the RIS3 Oost Strategy. Oost and the regional actors involved partake in a triple helix constellation, aimed to realize 'smart, sustainable and inclusive growth'. The primary focus of the region is valorization. By valorizing knowledge that is produced in the region, the region hopes to improve its global competitive position. For the largest part the innovative power in the region resides with SME companies despite the region being home to several large multinational corporations. This leads to a 'soft' infrastructure that forms a fruitful base for innovation and cooperation. The OP-Oost strategy mainly tries to facilitate and encourage process of innovation through cooperation, roadmapping and open innovation. By making funds available Oost tries to

challenge entrepreneurs to invest in a sustainable and renewing & revolving economy. The goal is to get companies to turn ideas into concepts and concepts into businesses cases. The OP-Oost identifies the potential for cross border cooperation with the other Dutch regions as NordRhein-Westfalen in Germany and other s3-clusters throughout Europe. Furthermore the OP-Oost states that the choices for the smart specialisations within the region should be regarded from a logical economical patterns rather than geographical demarcation.

The FoodValley aims to become a global top region in the field of Agro & Food, to be important breeding ground for the Dutch economy and an inspiring knowledge based region in Europe (FoodValley region, 2013, p. 1). To realize this goal, it's crucial that the Entrepreneurs, Education and Knowledge institutions and the Government (The three O's) combine their forces and propagate an unified face, message and ambition (FoodValley region, 2013, p. 1). The intended goals of both the RIS3 Oost Strategy as ambition of the FoodValley is to become a competitive knowledge-intensive region, which link up very well with each other.

The third sub question was:

"How is the Smart Specialisation Strategy RIS3 Oost implemented by the various actors involved in this process in the FoodValley region?"

In order to properly answer this question I will break down the power structure in the region. The FoodValley finds its legitimacy as a top region in the field of Agro & Food in the fact that The Wageningen University is based in the region. With the institute being one of the main authorities in its field, a big part of the identity of the region itself stems from the presence of the University. As such the University is involved in every aspect of the implementation process. The University works with the government in terms of economic policy and acquisition and works with businesses in terms of R&D and educational focus of the Universities programs like the decision to provide entrepreneurship programs. The University also provides facilities such as high-end laboratories. The role of the government is very much a facilitating role providing funding and creating conditions for implementing the strategy. The businesses are active in the last in the mid to last stage of the innovation process, turning concepts into business cases. Figure 12 outlines the multiple level knowledge exchange within the FoodValley, with the University at the heart of it all. All three actors are represented in the board of the FoodValley, which is the heart of the FoodValley when it comes to cooperation and really embodies the triple helix constellation.

The fourth sub question was:

“What are the preliminary results of the implementation of the Smart Specialisation Strategy RIS3 Oost in FoodValley and what is the influence of the various actors in the achievement of those results?”

To understand what the preliminary results of the RIS3 Oost strategy in the FoodValley are promising but to properly answer this question it is important to understand the impact of the level of cooperation that existed within the region in the period before smart specialisation. The Wageningen region or the FoodValley, as it's called now, has a long standing tradition when it comes to cooperation and the Agro & Food related focus of the region. Much of this can be attributed to the presence of the Wageningen University. The region has also been previously mentioned in earlier national economic strategies such as the 'Pieken in de Delta', the national economic policy that preceded the 'topsector' policy. The biggest merit of the RIS3 is probably is uniting the region under a single banner, The FoodValley, and giving it a legitimate basis to work from. The cooperation within the region between the municipalities has been improved in respect to the alignment of the certain policies such as those that pertain to business climate related issues like permits. Mandating FoodValley NL to facilitate and support the local businesses has a positive impact on the ability to innovate of local companies by for instance giving local companies a point where they can turn to if they want to innovate but don't know how where to start. The alignment of agendas and communication between actors within the region is one point, where most progress has been made. Earlier I alluded to the FoodValley early having a tradition of cooperation and using triple helix constellations to improve economic activity in the region. Building on previous policies and actively trying to improve the triple helix cooperation within the region can be seen as a form of structuration.

The influence of the various involved actors of these results differs. The businesses and FoodValley NL instigated the call for a more unified region on matters such as a business climate. In the RIS3 era this hasn't changed. The knowledge institutions and the Wageningen University in particular, have influence on the economic orientation of the government in the region, they actively cooperate on things like acquisition or infrastructure. The government uses their influence to guide the process in their role as facilitator.

Now that I have answered all my sub questions, I can answer my main research question:

“What is the state-of-the-art of the formulation and implementation of Smart Specialisation Strategies in the FoodValley region, and what is the influence of the various actors that are involved in this process?”

I think compared to some regions, the FoodValley might be a bit further along in the process of implementing Smart Specialisation Strategies. The FoodValley region might be the perfect example of how smart specialisation works in practice. But you can also make the argument that the region is impacted the least by the RIS3 policy. The regional focus was already there, the inner region cooperation was already present to some extent and the ground work for a FoodValley region was already laid. This can be seen as a form of structuration, imitating and trying to implement concepts that have proven successful elsewhere. What the RIS3 did give to the region is a legitimate basis to work from and giving it more executive power, it brought all the actors together and gave them a voice within the process (for as far as they didn't have already). So to answer the question, what is the current state of Smart Specialisation Strategies in the FoodValley region. The Smart Specialisation Strategies have been formulated and either have been or are in process of being implemented. The RIS3 Oost is fully embedded in the region, amongst all actors.

The knowledge institutions are at the heart of the FoodValley, they give the region legitimacy in their claim as a top region in the field of Agro & Food, they provide the region with human capital and maybe most important they produce knowledge, they do research. An institution such as The Wageningen University with around 10.000 students has a very big impact on the region. This impact becomes apparent when you look at the influence that it has with both the governmental actors as the business actors. The Wageningen Campus is something the region can leverage to attract outside competitors and improve the regional economy. On the campus The Wageningen University provides space for companies to settle. A campus, such as this, can help improve and speed up the process of innovation. The campus is a huge selling point for the region attracting R&D facilities of big companies like FrieslandCampina. But not all companies are able to move to a campus, or are big enough to have R&D facilities. When the Wageningen University moved to their current campus terrain, they left multiple high-end facilities. These facilities can be used through means of timesharing, helping those who cannot afford their own R&D facilities. An organization like FoodValley NL can also serve as the solution to those problems. Together with the Wageningen University they help keep the region innovating, by for instance connecting mismatching businesses together such as the ICT and agricultural sectors, they also provide a central place where companies can turn to for all things innovation related (It is difficult to put a label on FoodValley NL, they can be

seen as semi-private, as a company mandated by the government to stimulate and facilitate innovation).

The FoodValley organization really is an organization for the entire region and all actors present. The board members are spread out amongst actors from all corners of the triple helix constellation. Their influence has worldwide implication, it allows the region to present itself as unified and recognizable throughout the world, potentially turning the name FoodValley, into a household brand such as Silicon Valley. The forum that this organization represents is very beneficial for the cooperation within the region, bringing companies, knowledge institutions and the government together. Here municipalities can align their policies and create conditions for a good living and business climate. A strong living and business climate should to attract foreign knowledge workers and companies to move to the FoodValley. This is being done for instance by opening an expat desk at the Wageningen University, to help alleviate some of the bureaucratic burdens of moving to a different country.

The RIS3 Oost isn't perfect however as there are facets that can be critiqued. There is a mismatch between the geographical demarcation of the region and the bureaucratic demarcation. This mismatch is due to the fact that the RIS3 in The Netherlands is divided in four separate regions. The FoodValley is a border region and as such, three municipalities are included in the FoodValley region that are not included in the RIS3 Oost. These municipalities are located in the bureaucratic area RIS3 West. This creates situations where companies located in those three municipalities are in the same geographical area but can't apply for EFRO funding for the Agro & Food sector. The fact that the region is located in two different provinces makes the need for cooperation and communication that much more important. On a business level the scale of The Netherlands is very small compared to the rest of the world. Because of this Dutch businesses have good relations with one another. Focusing on specific regions then doesn't always make sense from a business standpoint when trying to attract foreign businesses. An Agro & Food relate company might for instance to be located in Amsterdam rather than Wageningen, for a foreigner, say a Chinese, Wageningen and Amsterdam are in the same area.

Based on these findings I can conclude that the FoodValley is very well on its way in the implementation smart specialisation. The cooperation within the region should serve as a blueprint for regions that to aspire to become a top region in their field. The FoodValley organization provides the region with a forum for all actors to be heard, to serve as an intermediary, as a network. The exchange of knowledge between all actors in the region is vital to the success of the FoodValley, it creates as a flywheel that can keep the region moving forward and innovating.

7.2 Critical reflection

This chapter will provide a critical reflection on the writing process and the research itself. I will elaborate on what went good and which things went wrong and how to prevent this from happening in the future (if possible). I will also provide recommendation for potential future research.

I started out doing some research on the topic of smart specialisation and what it entailed. It really helped that I had two people to do the first part of the research with. Bjorn Löring and Johan van de Vijver both had chosen the same bachelor thesis subject. Together we worked on the conceptual model and broke down the theoretic basis for the thesis. Throughout the research these didn't change for the most. I provided the initial batch of literature, like I always do I tried to find a few key pieces of literature and then go from there. The amount of literature available on most subjects can be daunting so finding a place to start building your literature base is very important.

I was on a good pace to perhaps even finish early. Especially Johan and I, we really made a good head start. But near the end of March some things changed in my personal life which made me slowdown that pace in which I was writing my thesis. I started too late with contacting people for interviews which cost me valuable time. In June of last year I also got married, something I am very happy about, but for my thesis this wasn't a positive for me finishing my thesis on time. I had conducted all my interviews and finished the first part of my thesis before the end of June. But over the summer I had to try and combine full time work with studying, something that proved to be very difficult. So I decided to postpone my transcribing of the interviews till after the summer. After the summer break, I had some trouble getting back up and running again. The transcribing part of my thesis took much longer than I initially had anticipated. Combining new work and finishing my thesis proved to be a quite hefty challenge. Making time to work on my thesis wasn't always easy between working five days and getting up early. Finding the motivation and concentration to set your mind to finishing my thesis was very difficult at times. But it's a challenge which I ultimately conquered. Throughout the writing process there have been certain moments of clarity, times in which I could finish a lot of work in a relative short period of time. Other times time passed slowly and I couldn't find the words.

I conducted nine interviews of which I ultimately used eight for my thesis. The content of the interviews very useful, I had a lot of fun interviewing all my correspondents. But I didn't always have the most strict interview guide, often I would use my guide to help me navigate the interview. I would engage in conversation and follow up on certain answers if the opportunity arose. This lead to some of the questions on the interview guide becoming obsolete. Other times the interview would stir into a certain direction that I would ask something that wasn't on the interview guide. I would say that this method proved to be very flexible and effective. Not all parts of the interviews were used

for my research but instead they helped me form a complete and correct picture of how the region worked. Throughout the entire process I thoroughly enjoyed myself, I had a lot of fun writing this thesis and I am proud of the final result.

During my research I would often come across the paradigm of bureaucratic vs geographic, and with this I mean that the geographic region FoodValley was not the same as the FoodValley that belonged to the OP-Oost. The effect of bureaucratic demarcation on economic growth within the region is an interesting topic. How to resolve the fact that companies in neighboring towns, that operate in the same field and the same region, can't apply for the same funding. The impact of the Wageningen campus on the regional economy of the FoodValley is also an area that might yield useful findings, focusing on just the campus rather than the entire region since the campus is so vital to the region.

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Images

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Appendix I: Interview guide knowledge institutions

Introductie

- Jezelf voorstellen
- Doel van interview
- Toestemming vragen om het interview op te nemen
- Positie van geïnterviewde

Factoren Porter

- Wat is de bijdrage van uw kennisinstelling aan de economische ontwikkeling in FoodValley? **(DC, FSR)**
- Zijn er voldoende talenten en docenten aanwezig in Va **(FC)**
- Hoe probeert u ervoor te zorgen dat talenten (zoals ik) niet wegtrekken uit de regio? **(FC, DC, RSI)**
- De regio wilt haar concurrentiepositie op de wereldmarkt versterken, op welke manier probeert de universiteit hier aan bij te dragen?**(RSI)**

Smart Specialisation

- Wat vindt geïnterviewde van Smart Specialisation?
- Hoe lang werkt u met Regio Food Valley?
- Wat is uw rol in de multi level knowledge exchange?
- Wat is er reeds gerealiseerd dmv Smart Specialisation **(FC)**?
- Meest recente bijdrage van kennisinstelling aan regionale ontwikkeling **(FC)**?
- Heeft het beleid van Regio Food Valley de campus ontwikkeling beïnvloed? **(FSR)**?
- Hoe ziet kennisinstelling de algehele ontwikkeling van de regio als gevolg van RIS3 **(FC)**?

Regio versterking door campus vorming en de Regio Food Valley

- Wat vindt geïnterviewde van Triple Helix samenwerking **(FSR)**?
- Hoe vaak vindt samenwerking plaats in/met op de campus en hoe versterkt dit de regionale economie? **(Str.)**?
- Welke overheden en bedrijven zijn betrokken **(RSI)**?
- Wat is de rol van de kennisinstelling en de andere actoren in de triple helix samenwerking?
- Wat is de toegevoegde waarde van de kennisinstelling in de triple helix samenwerking?

- Één van de hoofddoelen van de Regio Food Valley is om een sterke economie te creëren met een divers kennis profiel op de wereld markt en het realiseren van een sterk vestigingsklimaat. **(FC, DC, RSI, FSR)**
 - Welke rol heeft de multi level knowledge exchange in dit proces?
 - Wat wordt er precies gedaan om dit te realiseren?
 - Wat is de rol van de kennisinstelling in het realiseren van een multi level knowledge exchange?
 - Hoe verloopt de samenwerking met andere actoren in het realiseren van een multi level knowledge exchange?
- Wat zijn enkele succesvolle voorbeelden van regionale ontwikkeling door het kennisdeling schema?**(FC, DC, RSI, FSR)?**
 - Door overheid gesubsidieerd (markt)onderzoek
 - Universitaire spin offs
 - Ruimtelijke projecten
 - Science parks en innovatie
- Hoe was de samenwerking anders dan voor de Regio Food Valley?

Campus vorming

- Wat staat aan de grondlegging van de campus en de clustering van kennisinstellingen aan **(FC, RSI)?**
- Waarom vestigen bedrijven zich juist nu zich hier in Wageningen? **(FSR)?**
- Welke activiteiten worden ondernomen die bijdrage aan de economie **(FC)?**
- Wat is de toegevoegde waarde van de campus in de regio?

Afsluitend

- Wat zijn de (economische) toekomstdoelen voor FoodValley**(FSR)?**
- Hoe wil de kennisinstelling deze doelen dmv Smart Specialisation bereiken **(FSR)?**
- Hoe ziet de geïnterviewde zijn rol in de toekomst van FoodValley?
-

Afronding

- Bedanken
- Vragen naar andere respondenten
- Samenvatting thesis opsturen (naar e-mailadres?)

Appendix II: Interview guide government

Introductie

- Jezelf voorstellen
- Doel van het interview
- Toestemming vragen om het interview op te nemen

De overheidsinstantie zelf

- Positie van de geïnterviewde
- Wat is de huidige stand van zaken omtrent FoodValley vanuit het perspectief van de desbetreffende overheid?
- Bekendheid met fenomeen Smart Specialisation?

Regio (Porter)

- Welke economische doelen heeft de overheid in Food Valley? **(FSR)**
 - Invulling government van economisch beleid?
 - Opgelegd door hogere overheden (Zou het anders ook zijn ontstaan)?
 - Heeft de uitslag van de Provinciale Statenverkiezingen invloed op het te voeren economisch beleid, zo ja, hoe?
- Op welke manier denkt u dat Food Valley een competitief voordeel kan bewerkstelligen ten opzichte van andere regio's? **(DC)**
- Op welke manier probeert de overheid bedrijven uit de topsectoren naar Food Valley te lokken? **(RSI)**
 - Uitnodigingsplanologie

Smart Specialisation

- Wat vindt geïnterviewde van Smart Specialisation?
- Hoe is het samenwerkingsverband Food Valley ontstaan?
- Hoe verschilt de formulering, implementatie van beleid en de samenwerking tussen de actoren onder de paraplu van S3 ten opzichte van voorgaande beleidsstrategieën zoals Pieken in de Delta.
- Wat is er reeds gerealiseerd dmv Smart Specialisation?
- Was er samenwerking bij de uitvoering van de Smart Specialisation Strategie?

Samenwerking binnen Food Valley

- Wat vindt geïnterviewde van Triple Helix samenwerking?
- Hoe vaak vindt samenwerking plaats in/met het Regio Food Valley
- Wat is de rol van de overheid en de andere actoren in de triple helix samenwerking?
- Wat is de toegevoegde waarde van de overheid in de triple helix samenwerking?
- Hoe wordt uitnodigingsplanologie toegepast binnen Regio Food Valley?
- Uit de MIRT studie over de Food Valley blijkt dat de bereikbaarheid binnen de regio een zwakke schakel is in het ontwikkelen van een sterke economische regio. Wordt hier aangewerkt, zo ja hoe?
- Hoe ziet de overheid de rol van kleine bedrijven binnen de economische ontwikkeling van de regio ten opzichte van de grote bedrijven op de campus in Wageningen?

Afsluitend

- Wat zijn de (economische) toekomstdoelen voor Food Valley?
- Hoe wil de overheid deze doelen dmv Smart Specialisation bereiken?
- Hoe ziet de geïnterviewde zijn rol in de toekomst van Food Valley?

Afronding

- Bedanken
- Samenvatting thesis opsturen (naar e-mailadres?)

Apendix III: Interview guide FrieslandCampina

Introductie

- Jezelf voorstellen
- Doel van interview
- Toestemming vragen om het interview op te nemen

Het bedrijf zelf

- Positie van de geïnterviewde
- Wat is de huidige stand van zaken omtrent FoodValley vanuit het perspectief van de desbetreffende bedrijf?
- Bekendheid met fenomeen Smart Specialisation?

Factoren Porter

- Hoe beoordeelt de factor condities voor uw bedrijf in FoodValley? **(FC)**
 - Genoeg ruimte
 - Kwaliteit vastgoed
 - Aanwezigheid talent in de regio
 - Locatie
 - Beschikbaarheid technologie voor innovatie
 - Vestigingsklimaat
- Wat is de reden voor het verhuizen naar de Wageningen campus voor Friesland Campina?
- Op welke manier denkt u dat Food Valley een competitief voordeel kan bewerkstelligen ten opzichte van andere regio's?
- Wat vindt u van het economisch beleid van de overheid in FoodValley? **(FSR)**
 - Gemakkelijk opzetten van start-ups
 - Bureaucratie en regelgeving

Smart Specialisation

- Wat vindt geïnterviewde van Smart Specialisation?
- Werkt u samen met de Regio Food Valley?
- Wat voor waarde heeft het om lid te zijn van Food Valley NL?

- Neemt Friesland Campina deel aan consortiums voor het aanvragen van EFRO (EU subsidies) gelden?

Samenwerking met kennisinstellingen

- Wat vindt geïnterviewde van Triple Helix samenwerking (**FSR**)?
- Hoe vaak vindt samenwerking plaats in Food Valley (**Str.**)?
- Welke kennisinstellingen en bedrijven zijn betrokken (**RSI**)?
- Wat is de rol van het bedrijf en de andere actoren in de triple helix samenwerking?
- Wat is de toegevoegde waarde van het bedrijf in de triple helix samenwerking?
- Hoe belangrijk is nabijheid voor het stimuleren van innovatie?
- Is Friesland Campina actief in horizontale specialisatie, het ontwikkelen van producten/diensten/kennis van gerelateerde diensten binnen een specifieke sector (Agro Food)?
 - Spin offs
 - Cross-overs
- Wat zijn enkele succesvolle voorbeelden van regionale ontwikkeling door samenwerking binnen Food Valley?

Afsluitend

- Wat zijn de (economische) toekomstdoelen voor FoodValley en het bedrijf?
- Hoe wil het bedrijf deze doelen dmv Smart Specialisation bereiken?
- Hoe ziet de geïnterviewde zijn rol in de toekomst van FoodValley?

Afronding

- Bedanken
- Samenvatting thesis opsturen (naar e-mailadres?)

Appendix IV: Interview guide FoodValley NL

Introductie

- Jezelf voorstellen
- Doel van interview
- Toestemming vragen om het interview op te nemen
- Positie van geïnterviewde

Factoren Porter

- Wat is de bijdrage van uw (kennis)instelling aan de economische ontwikkeling in FoodValley?
(DC, FSR)
- Food Valley NL is een organisatie die zich inzet voor de gehele Agro & Food sector in Nederland, toch bevinden veel aangesloten bedrijven zich in de regio Food Valley – is de regionale schaal, de nabijheid een belangrijke factor in het kader van RIS voor het creëren van een effectief en goed innovatie netwerk?
- ~~• Zijn er voldoende talenten en docenten aanwezig in Va **(FC)**~~
- ~~• Hoe probeert u ervoor te zorgen dat talenten (zoals ik) niet wegtrekken uit de regio? **(FC, DC, RSI)**~~
- ~~• De regio wilt haar concurrentiepositie op de wereldmarkt versterken, op welke manier probeert de universiteit hier aan bij te dragen? **(RSI)**~~

Smart Specialisation

- Wat vindt geïnterviewde van Smart Specialisation?
- Op welke manier werkt Food Valley NL samen met regionale en de nationale overheid?
- Food Valley NL is opgericht in 2004, sinds 2011 is RIS3 een officieel Europees beleid, ziet Food Valley NL een verandering op het gebied van samenwerking en open innovatie in de periode na 2011 ten opzichte van de periode 2004-2011?
- Regio Food Valley kan getypeerd worden als de Silicon Valley van de Agro & Food sector, is de aanwezigheid van een grote aantrekker zoals de WUR integraal voor het bewerkstelligen van innovatie of werkt een open innovatie netwerk ook voor gebieden waar deze aantrekkingskracht minder duidelijk aangedreven wordt door een grote speler?
- Hoe ziet instelling de algehele ontwikkeling van de regio als gevolg van RIS3 **(FC)**?

Regionale versus nationale scope

- RIS3 strategien vinden plaats op de regionale schaal, hoe verhoud de regionale orientatie van de Regio Food Valley en de nationale scope van Food Valley NL zich in de praktijk?

Campus vorming

Afsluitend

- Wat zijn de (economische) toekomstdoelen voor FoodValley NL en welke rol speelt Food Valley daarin(**FSR**)?
- Hoe ziet de geïnterviewde zijn rol in de toekomst van FoodValley?

Afronding

- Bedanken
- Vragen naar andere respondenten
- Samenvatting thesis opsturen (naar e-mailadres?)