Master Thesis

Innovation clusters and national culture

Influence of Dutch and Moroccan culture on the performance of the horticultural innovation cluster in Sous-Massa

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Executive summary

In this study, the influence of national culture on an innovation cluster's performance is analysed. The study is focused on the horticultural innovation cluster in the Sous-Massa region, Morocco.

Horticulture is a main driver of the Moroccan economy (Janssen, 2022). However, sector development is highly necessary to mitigate the sector's negative sustainability footprint, e.g. decrease water usage and chemical control (Landbouwattachénetwerk, 2020, 2022). The Moroccan and Dutch governments and the Hassan II University have joined forces to stimulate innovation and knowledge exchange. They developed a Centre of Excellence in Horticulture in the Sous-Massa region, which facilitates research, training and demonstration. To kickstart the centre, the program 'Greenport Agadir' is being launched. The program is aimed to stimulate knowledge exchange and foster innovation through collaborations between Moroccan and Dutch horticultural actors.

Previous research has shown that aligned social and cultural values are highly important to create a fertile learning environment and foster innovation. Moreover, multiple studies demonstrate that national culture influences a country's innovativeness. However, research into the influence of national cultures on the performance of innovation clusters is absent and research on innovation clusters in developing countries is limited. The knowledge gap is addressed by analysing the influences of Moroccan and Dutch culture on the performance of the horticultural innovation cluster in the Sous-Massa region.

This study is conducted by performing a qualitative thematic analysis. First, a theoretical framework is synthesized by reviewing existing literature on (a) national cultural dimensions and their influence on a country's innovativeness, (b) types of innovation clusters, (c) success factors influencing the performance of innovation clusters and (d) innovation clusters in developing countries. Second, Hofstede's Country Comparison database is consulted as exploratory data to gain a deeper understanding of the national cultural differences between Morocco and the Netherlands. Third, interviews are conducted with eleven Moroccan and eight Dutch actors operational in the Moroccan horticultural cluster. After deductive and inductive coding, both within-interview and cross-interview analyses are performed to first identify the important findings per actor and second analyse the variation of the findings across different actors.

From the empirical analysis, it can be concluded that national culture can have both a positive influence and negative influence on the performance of innovation clusters. Moreover, large cultural differences can negatively influence the performance of a bi-cultural innovation cluster. The national cultural dimensions influencing the performance of an innovation cluster negatively are masculinity, individualism, short-term orientation and high power distance. The national cultural dimensions influencing an innovation cluster positively are femininity, collectivism, long-term orientation and low power distance. Furthermore, this study presents two new dimensions of national culture: language and punctuality. Large differences in language and punctuality between countries influence the performance of a bi-cultural innovation cluster negatively.

From these results, managerial implications are proposed which are relevant to the Moroccan-Dutch Greenport Agadir in specific and more generally to organisations involved in bi-cultural innovation clusters and professionals who aim to stimulate innovation within their cluster. Overall, professionals must be aware of a country's national culture to understand its influence on an innovation cluster's performance. Understanding this relation enables professionals to make interventions on potential barriers influencing the performance negatively and make use of success factors influencing an innovation cluster's performance positively.

Table of contents

1. Introduction

Horticulture is a main driver of the Moroccan economy. The agriculture sector accounts for 14% of the country's GDP and employs 40% of the labour force (Janssen, 2022). Although this positive influence on Morocco's prosperity, horticulture leaves a negative sustainability footprint. For example, the sector absorbs 85% of the national water consumption for the cultivation of fruit and vegetables which mainly end up in export (65% in the region Sous-Massa) (GroentenNieuws, 2022; Janssen, 2022). Innovating Morocco's horticulture is pertinent to create a positive force of change, like increasing the water efficiency and sustainable food production (Landbouwattachénetwerk, 2020, 2022).

To enable development of the horticulture sector, the Moroccan and Dutch government have joined forces. Both countries have had a bi- and multilateral relationship for over 400 years to enhance amongst others the economical status (Dutch and Moroccan Ministry of Foreign Affairs, 2022). The Netherlands invests in such development alliances by offering its knowledge and skills in sectors in which the nation excels, like horticulture (Dutch Government, n.d.). Moreover, Morocco is the Netherlands' second most important trading partner in North Africa (Rijksdienst voor Ondernemend Nederland, 2022). Morocco exports food (e.g. citrus fruit, tomato's) to the Netherlands and the Netherlands exports their technology (e.g. seeds) to Morocco (Landbouwattachénetwerk, 2020).

In 2022, the Moroccan and Dutch government and the Hassan II University joined forces to stimulate innovation and knowledge exchange. They developed a Centre of Excellence in Horticulture (CoE) in the Sous-Massa region (figure 1) which will provide training and demonstrations, exhibit innovations, stimulate R&D and support students with start-up ideas (Sellam, 2022). The CoE is located at the Hassan II University in Agadir (Janssen, 2022). Agadir is located at the west coast of Morocco and is, with a cultivation area of 20.000 ha, one of the biggest greenhouse regions in Africa (LDE Centre for Sustainability [LDE], n.d.). To reach the goal, the CoE will exist of amongst others a validation glasshouse (plastic & mid-tech), a glasshouse with glass cladding and an incubator.

Figure 1: map Morocco (Central Intelligence Agency, 2017)

To kickstart the CoE, an impact cluster (called 'Greenport Agadir') is being launched involving both Moroccan and Dutch parties, which operate in agricultural development, production, training and research & education (LDE, n.d.). The purpose of this program is to stimulate knowledge exchange and foster innovation in the horticultural sector. The impact cluster (or innovation cluster) aims to develop the greenhouse production of fruity vegetables by (a) enhancing knowledge transfer through training and coaching and (b) developing sustainable and climate resilient innovations. With these goals, the impact cluster will focus on positively influencing economic growth (SDG 8), responsible production (SDG 12) and partnerships (SDG 17). The Dutch company HortiTech is responsible for creating and managing this innovation cluster program (LDE, n.d.).

There has been a variety of studies on actors and competences necessary to build successful innovation clusters in general (Cooke, 2001; Cooke, Boekholt, et al., 1998; Cooke, Gomez Uranga, et al., 1997; Doloreux, 2002a); some studies on the characteristics to create innovation clusters in developing countries (Altenburg, 2009; Padilla-pérez et al., 2009; Vang & Asheim, 2016); and multiple studies on national cultural dimensions influencing a country's innovativeness (Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, & Salmador, 2018). Moreover, researchers advocate that aligned social and cultural values are highly important to create a fertile learning environment and foster innovation (Cooke, Uranga, et al., 1997; Doloreux, 2002a). However, research into the influence of national cultures on the performance of innovation clusters is lacking and knowledge on developing countries is limited (Padilla-pérez et al., 2009). To address this research gap, this study is focused on answering the following research question:

What is the influence of national culture on the performance of an innovation cluster and what are implications for the Moroccan-Dutch Greenport Agadir?

Understanding the influence of Moroccan and Dutch national culture on the performance of the innovation cluster in the Sous-Massa region is crucial to stimulate sector development. As the Greenport Agadir program just started, most actors in the region do not have experience in collaborating with organisations from the other country yet. Understanding and accepting the differences and similarities between the country's cultural values and where necessary bridging these differences are necessary to develop prosperous relations between the actors in the Greenport Agadir program.

To answer the research question, a qualitative analysis is performed. First, a theoretical framework is built combining the studies on innovation clusters and influences of culture on a country's innovativeness. Second, Hofstede's Country Comparison database is consulted as exploratory data to gain a deeper understanding of the national cultural differences between Morocco and the Netherlands. Third, semi-structured interviews are conducted with Moroccan and Dutch horticultural actors operational in the Sous-Massa region. A thematic analyses is used to code and analyse the data. Finally, the results are presented both within- and cross-interview, providing insight into the influence of national culture on the performance of an innovation cluster, and in specific Greenport Agadir. In the discussion, suggestions are made to minimize the negative cultural influences and bridge cultural differences between countries. Dutch and Moroccan actors can use these findings to enhance alliances to support innovation. Moreover, the thesis may lead to further empirical investigation of the influence of national culture on the performance of an innovation cluster in other geo- and demographical areas.

2. Literature study

To define the literature gap and design a theoretical framework, existing literature is studied. The research question has been broken down into sub-questions and will be discussed in corresponding order:

1. What does the literature state about the influence of national culture on a country's innovativeness?
2. What does the literature state about the definition of innovation clusters?
3. What does the literature state about characteristics influencing the success of an innovation cluster?
4. What does the literature state about characteristics influencing the success of an innovation cluster in developing countries?

2.1 Influence of national culture on a country's innovativeness

The definition of culture is a largely debated subject in social studies. In this study, national culture is defined as the behaviours, norms, values, beliefs and customs shared by a nation's population (Bik, 2010; IGI Global, n.d.; Tian, Deng, Zhang, Salmador, et al., 2018a).

National culture and innovation are highly connected (Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). There have been several studies performed on the relation between national culture and innovation. E.g. Tian et al. (2018) performed a literature study in which many of these studies are combined and summarized. The overall existing literature defines six cultural dimensions influencing the innovativeness of a country (table 1):

Power distance. Power distance is the degree to which social groups expect and accept unequal distribution of formal power (Hofstede, 2011; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018b). In countries with large power distance hierarchy is seen as existential (Hofstede, 2011). In such cultures, individuals experience a lack of resources and/or opportunities to make decisions on innovation, resulting in lower incentives to come up with novel ideas (Jang et al., 2016; Tian, Deng, Zhang, Salmador, et al., 2018b). Countries with small power distance define hierarchy as the inequality of roles and is only established for convenience (Hofstede, 2011). Therefore, in small power distance cultures hierarchy is less fixed enabling people to overcome power barriers resulting in a higher level of idea generation of individuals (Jang et al., 2016; Tian, Deng, Zhang, Salmador, et al., 2018b; Vang & Asheim, 2016).

Individualism/Collectivism. Individualism describes a society with a more ego-centric approach in which individuals focus have close ties, are independent of each other and mainly focus on themselves (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). This encourages people to make their own decisions and achieve their personal goals, resulting in greater innovativeness (Jang et al., 2016; Kaasa, 2017; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). Collectivism is the contradict and defines a society with a more socio-centric approach in which individuals are strongly connected in cohesive groups (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). In general, this lack of freedom and autonomy is argued to be destructive for innovation (Jones & Davis, 2000). However, other studies argue that nationalism or patriotism (types of collectivism) positively influence innovation (Jang et al., 2016; Tian, Deng, Zhang, Salmador, et al., 2018a). Moreover, some studies advocate that the effect of individualism on innovation is insignificant or indirect (Tian, Deng, Zhang, Salmador, et al., 2018b). As existing literature shows contradicting results, the influence of these cultural dimensions on innovation is determined to be uncertain.

Masculinity/Femininity. In a masculine culture people tend to be assertive, goal-oriented and competitive (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). In a feminine culture, people are more person-oriented with attention to quality of life and favour cooperation. Existing literature, shows contradicting results on which dimension is more favourable for innovation (Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). Some studies claim that a masculine culture is preferable as assertiveness and goal orientation positively influence the likelihood of idea generation (Jang et al., 2016; Tian, Deng, Zhang, Salmador, et al., 2018a). Other studies argue for a feminine culture as cooperation and a caring environment decreases uncertainty and therefore increases innovativeness (Kaasa, 2017; Khan & Cox, 2017; Tian, Deng, Zhang, & Salmador, 2018). To conclude, masculinity could be preferable in the idea generation phase and femininity during implementation.

Uncertainty Avoidance. Uncertainty avoidance is the degree to which societies are feeling comfortable to take risk, act in uncertain situations and accept unorthodox opinions (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). Societies with high uncertainty avoidance tend to avoid and mitigate uncertain activities by relying on social norms, formal rules and bureaucracy (Hofstede, 2011; Tian, Deng, Zhang, Salmador, et al., 2018b). Societies with low uncertainty avoidance are more willing to accept different opinions and taking risks which stimulates a nation's innovativeness (Jang et al., 2016; Kaasa, 2017; Tian, Deng, Zhang, Salmador, et al., 2018b).

Indulgence/Restraint. Indulgent societies allow free fulfilment of human desires and needs related to life enjoyment (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). In restraint societies this fulfilment is suppressed by strict means and social norms (Hofstede, 2011; Khan & Cox, 2017). As a result individuals in indulgent societies tend to be more optimistic, while people in restraint societies appear more pessimistic (Khan & Cox, 2017). Although some studies suggest that indulgence stimulates innovation, direct evidence is lacking (Griffith & Rubera, 2014; Khan & Cox, 2017; Minkov & Blagoev, 2012; Tian, Deng, Zhang, & Salmador, 2018).

Long-term orientation/Short-term orientation. This dimension (also called Confucian Dynamism) indicates a dynamic future-oriented society versus a static past/present-oriented culture (Hofstede, 2011; Khan & Cox, 2017). Long-term focused societies value planning, hard work, achieving goals, thrift and having a sense of shame (Hofstede, 2011; Jang et al., 2016; Khan & Cox, 2017). Short-term focused societies value tradition, personal steadiness and stability, mutual social obligations. As long-term focused societies are more future oriented, these societies are more likely to be innovative than short-term oriented societies (Jang et al., 2016; Khan & Cox, 2017; Tian, Deng, Zhang, & Salmador, 2018).

Table 1: overview national cultural dimensions and influence on innovation

National Cultural Dimensions	Influence on innovation
Power Distance	Low Power Distance has a positive influence on a nation's innovativeness.
Individualism/Collectivism	Results are contradicting on this cultural dimension.
Masculinity/Femininity	Results are contradicting on this cultural dimension.
Uncertainty Avoidance	Low uncertainty avoidance has a positive influence on a nation's innovativeness.
Indulgence	Sufficient evidence is lacking.
Long-term orientation/Short-term orientation	Long-term orientation has a positive influence on a nation's innovativeness.

2.2 Innovation cluster: several definitions

In general, clusters are defined as "(…) geographic concentrations of interconnected companies and institutions in a particular field."(Porter, 1998, p. 78). The geographical proximity of actors enable knowledge spillovers and stimulate learning, adaptation and creation (Doloreux & Parto, 2004; Feldman, 1994; Malmberg, 1997). In other words, an innovation cluster stimulates and facilitates innovation which is a main force for economic growth and competitive advantage (Doloreux & Parto, 2004; Yu & Jackson, 2011).

A regional innovation system (RIS) presents a more systematic approach of regional innovation clusters. A generally accepted definition of RIS is lacking in existing literature (Doloreux & Parto, 2005). However, it is typically understood as a regionally located set of public and private actors that operate according to organisational and institutional alliances to generate, use and disseminate knowledge in a specific field, with the purpose to reinforce regional innovativeness (Doloreux, 2002b; Doloreux & Parto, 2005).

Asheim et al. (2003) argue that regional innovation systems are traditionally seen as regional clusters surrounded by innovation supporting organisations. Moreover, Uyarra & Ramlogan (2016) state that clusters are related to regional innovation systems. As the purpose of Sous-Massa's cluster on horticulture is to stimulate knowledge exchange and foster innovation, the terms innovation cluster and regional innovation system can be used interchangeable.

Literature on RIS identifies four conditions forming such system: (1) knowledge generation and diffusion by research institutes, educational institutions and technology transfer organisations, (2) regional policy defined by local/national governmental authorities, (3) knowledge application and exploration by local companies and (4) informal (i.e. norms and values) and formal (i.e. laws and regulations) institutions (Kiryushin et al., 2013; Trippl, 2010). To increase regional innovativeness, the linkages between local actors should be tight and the knowledge generation/diffusion and application/exploitation should be incentivised and supported by regional policies (Tödtling & Trippl, 2005). The socio-institutional conditions (i.e. (in)formal institutions) have a significant influence on the creation of local cooperation and networking (Trippl, 2010). Moreover, the RIS is influenced and influences other regional innovation systems, the national innovation systems and possibly international actors (Makkonen & Rohde, 2016). Figure 2 shows the elements within a RIS and elements which are influencing and influenced by RISs.

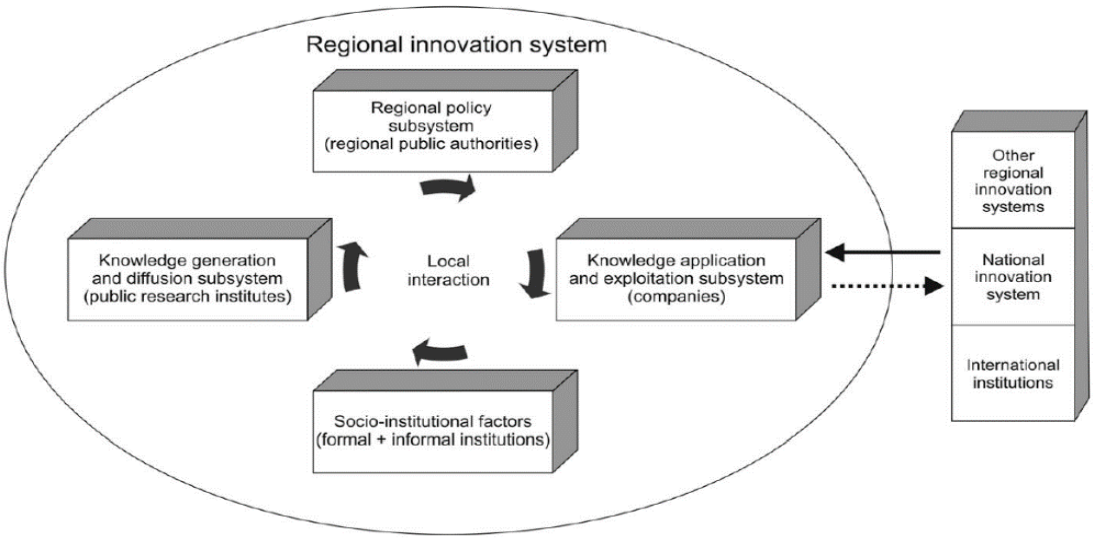

Figure 2: conditions of RIS (Makkonen & Rohde, 2016)

Furthermore, research describes the application of RISs in a cross-border context, also called Cross-Border Regional Innovation System (CBRIS). A CBRIS is applicable when the system embeds two separate National Innovation Systems (NIS) (Makkonen & Rohde, 2016). A cross-border cluster performs well when both nations have a well-developed scientific fundament and innovation-related infrastructure, exchange economic value and knowledge and when the nations have tight formal and informal institutions. However, different countries could have significantly different socio-institutional factors raising barriers to the innovation system. On the other hand, these differences might create new opportunities when combining unexploited interactions.

The Dutch Ministry of Foreign Affairs introduced term 'impact cluster', which is a policy instrument to support private-sectoral development in developing countries (called PSD) (van der Zalm et al., 2018). PSD partners act by the 'Aid, Trade and Investment-policy' which combines two goals: (1) stimulating the development of regions, nations and citizens, and (2) increasing the growth and competitiveness of the local and Dutch economy. To gain competitive advantage, local communication must be rich in terms of knowledge and ideas (Makkonen & Rohde, 2016). The impact cluster is used as an policy instrument to support groups of Dutch and local businesses, knowledge institutions and NGOs which see opportunities in a specific sector that can contribute to development of a developing country (Landbouwattachénetwerk, 2021).

2.3 Innovation cluster: success factors influencing the potential

An regional innovation system's potential is influenced by three levels of analysis: (a) institutional level (i.e. norms and values), (b) firms' organisational level and (c) organisational level for governance (Cooke, Boekholt, et al., 1998; Cooke, Uranga, et al., 1998). These levels exist of several success factors showing the embeddedness (or proximity) of the region, i.e. the extent to which actors within the region are able to operate interdependently with shared norms and trust. Table 2 summarizes the influence of the success factors on a region's innovation cluster potential.

Table 2: Regional Innovation Systems potential (Cooke, Boekholt, et al., 1998)

Regional Innovation System Potential	
Higher	Lower
Institutional level	
Cooperative culture	Competitive culture
Interactive learning	Individualistic
Associative-Consensus	Institutional dissension
Organisational level (firms)	
Harmonious labour relations	Antagonistic labour relations
Worker mentoring	Self-acquired skills
Externalisation	Internalisation
Interactive innovation	Stand alone R&D
Organisational level (governance)	
Inclusive	Exclusive
Monitoring	Reacting
Consultative	Authoritative
Networking	Hierarchical

Institutional level. A region with a cooperative culture and focussed on learning and consensus building is likely to build a strong regional innovation system. A region with a competitive culture, showing individualism (i.e. "not invented here" mentality) and institutional disagreement is less likely to build a strong innovation cluster. (Cooke, 2001; Cooke, Boekholt, et al., 1998; Cooke, Uranga, et al., 1998)

Interactive learning is one of the key success factors of the institutional level (Cooke, 2001; Cooke, Boekholt, et al., 1998; Cooke, Uranga, et al., 1997; Doloreux, 2002a). It can be defined as the interactive process of shared knowledge generation and exchange among actors within an innovation process which is shaped by institutional routines and social conventions (Morgan, 2007). Interactive learning enables actors to obtain knowledge which they lack themselves.

Organisational level of firms. Regions are more likely to build a strong innovation cluster when they include firms showing harmonious labour relations (i.e. positive worker welfare), mentoring systems to support employees, openness to externalisation of business functions and openness to knowledge exchange to support innovation. Regions including firms with hostile labour relations, workplace divisions, individualistic learning environment, internalisation of business functions and stand alone R&D are less likely to build a strong innovation cluster. (Cooke, 2001; Cooke, Boekholt, et al., 1998; Cooke, Uranga, et al., 1998)

Organisational level of governance. Regions have a higher regional innovation system potential when they show inclusivity (i.e. engaging all stakeholders), monitoring practices, consultation and networking among policymakers. Regions have a lower potential when they tend to operate exclusive (i.e. engaging only some stakeholders), reactive, authoritative and hierarchical. (Cooke, 2001; Cooke, Boekholt, et al., 1998; Cooke, Uranga, et al., 1998).

Boschma (2005) published an article on the impact of another, partly comparable, set of success factors on a region's ability to learn and innovate. On a geographical level, proximity is the fundament of clusters and RISs as this proximity stimulates social interaction and trust, leading to knowledge spill overs and innovation (Ben Letaifa & Rabeau, 2013). However, to create a successful innovation cluster, the local interaction must be complemented by other interrelated success factors: social, organisational, institutional and cognitive proximity (Ben Letaifa & Rabeau, 2013; Boschma, 2005). In general, to foster knowledge transfer and innovation, it is key to balance these success factors, i.e. there must be nor too much, neither too little proximity (Boschma, 2005).

Cognitive level. Cognitive proximity is based on the perception of actors in terms of the way they perceive, interpret and evaluate the world (Balland, 2012). Therefore, sharing an equal knowledge base and expertise leads to effective communication (Boschma, 2005). However, too much proximity may result in a lack of novelty as people share the same knowledge and face difficulties to explore and exploit new knowledge.

Organisational level. The relationships between stakeholders can range from weak ties (i.e. actors operating autonomously) to strong ties like well-coordinated ecosystems (i.e. actors operating interdependently) (Moore, 2006). Strongly connected actors, i.e. high organisational proximity, stimulates cooperation and knowledge spill overs (Ben Letaifa & Rabeau, 2013). Too high organisational proximity could result in strong bureaucracy and hierarchy disabling inter- and intra organisational knowledge transfer.

Social level. Social proximity lies within the level of trust individuals have in each other which can be based on friendship, kindship and or experience (Boschma, 2005). This results in clear communication

and a higher level of collaboration and knowledge transfer (Ben Letaifa & Rabeau, 2013). Too strong social proximity could result in a closed local community in which hidden delusion could emerge.

Institutional level. Institutional proximity entails the closeness of cultural norms and beliefs regulating (non-)organisational relationships (ben Letaifa & Rabeau, 2013). Therefore, social and organisational proximity are strongly related to institutional proximity (Boschma, 2005). In other words, institutional proximity enables clear communication and stimulates social and organisational proximity (ben Letaifa & Rabeau, 2013). However, too strong institutional proximity limits the ability to innovate as thinking outside-the-box might be difficult.

These five success factors of Boschma (2005) are not a guarantee to successful collaboration, knowledge spill over and innovation (Ben Letaifa & Rabeau, 2013; Boschma, 2005; Makkonen & Rohde, 2016). However, the success factors, if well balanced, can strongly stimulate the goals of an innovation cluster. What the ideal balance of 'nor too much, neither too little proximity' looks like, remains unclear in existing literature (Makkonen & Rohde, 2016). On the contrary, literature has shown that social proximity is the most important success factor to create a sustainable relationship enabling innovation (ben Letaifa & Rabeau, 2013). As institutional proximity strongly influences all levels of success factors, this dimension is deemed highly relevant as well.

2.4 Innovation clusters: adaptation to developing countries

Last decades academics have shown increased attention to the differences between (Regional) Innovation System's in developed and developing countries (Altenburg, 2009; Padilla-pérez et al., 2009; Vang & Asheim, 2016). However, literature on the adaptation of this theory to developing countries remain scarce. Although the abstract concepts of RISs (i.e. innovation process, role of institutions etc.) are equally applicable for developing countries, the local context can be extremely different (Vang & Asheim, 2016). Developing countries often have weak indigenous formal institutions (i.e. rules), face strong international governance interference, focus on catching up rather than being a frontrunner and rely on external resources for access to capital, training and education (Altenburg, 2009; Padilla-pérez et al., 2009; Vang & Asheim, 2016). Moreover, informal institutions (i.e. norms, values and beliefs) vary and influence actors' behaviour and interaction within RISs (Altenburg, 2009; Padilla-pérez et al., 2009).

Existing literature on RIS in developing countries mainly focus on the theoretical adaptation of RIS, including different actor roles and the capabilities they must have. Insight in the success factors of innovation clusters in developing countries and their influence on an innovation cluster's performance is lacking. Moreover, the influence of cultural values on such an innovation cluster is absent.

2.5 Literature study conclusion

An impact cluster is a geographic concentration of actors of two nations binding forces to contribute to development of a developing country by stimulating knowledge transfer and innovation. The principles innovation cluster and Regional Innovation System can be used interchangeably to describe an impact cluster. As in Greenport Agadir some Dutch horticultural stakeholders are mobilized in the Moroccan context, rather than bridging two national innovation systems, the Cross-Border Regional Innovation Cluster is not fully applicable to this case. However, differences in socio-institutional factors between Dutch and Moroccan actors might influence the local interaction in the Moroccan horticultural sector. Therefore, when referring to the interplay between Dutch and Moroccan actors in the Moroccan horticultural sector, the innovation cluster is referred to as bi-cultural innovation cluster.

An innovation cluster is formed by four conditions: (a) knowledge generation and diffusion by research institutes, educational institutions and technology transfer organisations, (b) regional policy defined by local/national governmental authorities, (c) knowledge application and exploration by local companies and (d) informal (i.e. norms and values) and formal (i.e. laws and regulations) institutions. Within an impact cluster knowledge institutions, businesses and governmental bodies from two nations are cooperating in a local innovation cluster.

The Regional Innovation System potential indicates three levels of factors influencing an impact cluster's success: (a) institutions, (b) organisational level of firms and (c) organisational level of governance. Each level contains several success factors relating to a higher or lower potential. More recent research indicates four levels of success factors influencing a cluster's potential: (a) cognitive proximity i.e. knowledge base, (b) organisational proximity i.e. organisational network, (b) social proximity i.e. personal network and (c) institutional proximity i.e. culture. Balancing the proximities is necessary to enhance collaboration, knowledge spill overs and innovation.

To conclude, literature has shown various levels of success factors influencing the performance of an innovation cluster. To create a successful innovation cluster, it is important to reach an equilibrium in which the positive factors have a larger magnitude. In table 3, the success factors described in the literature study are combined to four factor types: cognitive, institutional, social and organisational.

Table 3: success factors influencing the performance of an innovation cluster

Success factors influencing the performance of an innovation cluster		
	Positive	Negative
Cognitive factors *Related to the process of acquiring knowledge.*	Equal knowledge base Interactive learning Worker mentoring	Unequal knowledge base Individualistic learning Self-acquired skills
Institutional factors *Related to norms and beliefs.*	Tight cultural beliefs Cooperative culture Monitoring tendency Consultative	Distant cultural beliefs Competitive culture Reactive tendency Authoritative
Social factors *Related to the relationship between individuals.*	Harmonious labour relations Trust Clear communication	Antagonistic labour relations Distrust Indistinct communication
Organisational factors *Related to the relationship between actors.*	Strong stakeholder ties Externalisation of activities Interactive innovation Inclusive to stakeholders Networking collaboration	Weak stakeholder ties Internalisation of activities Stand alone R&D Exclusive to stakeholders Hierarchical collaboration

Research has shown that the institutional success factors influence the other levels of success factors. These institutional factors are related to cultural norms, values and beliefs. Literature has shown five dimensions of national culture significantly influencing a country's innovation potential: (a) Power Distance, (b) Individualism/Collectivism, (c) Masculinity/Femininity, (d) Uncertainty Avoidance, (e) Long-term orientation/Short-term orientation. Low power distance, low uncertainty avoidance and long-term orientation have a positive influence on a nation's innovativeness. Literature on

Individualism/Collectivism and Masculinity/Femininity shows contradicting results. For these dimensions, it is important to balance the cultural dimension in order to be a positive force on innovation.

Figure 3 shows the relations between above discussed dimensions. National or local culture influences the institutional success factors, influencing the other levels of success factors which influences the performance of an innovation cluster, i.e. ability of the innovation cluster to stimulate cooperation, knowledge spill overs and innovation.

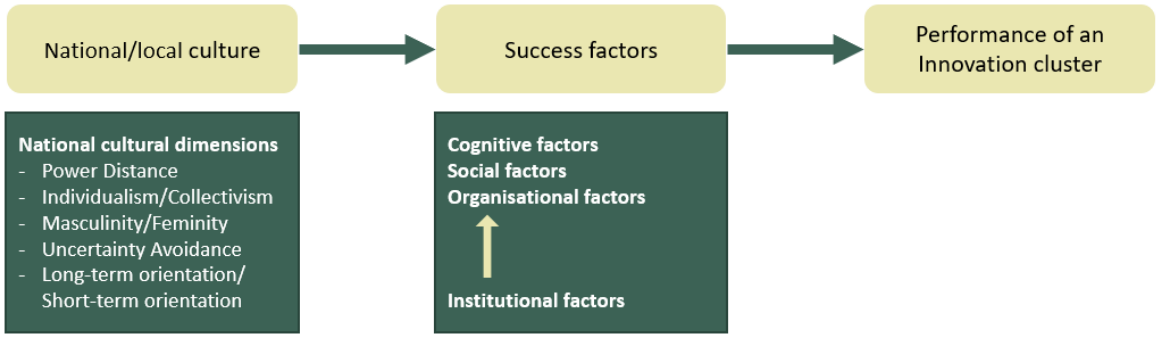

Figure 3: relation between national culture, success factors and innovation clusters

Most literature on innovation clusters and the role of national culture on innovation is performed in developed countries. Last decades, academics have shown an increased attention to the differences between innovation clusters in developed and developing countries. Developing countries often have weak formal institutions, face strong international governance interference and rely on external resources for access to capital, training and education. Moreover, informal institutions (i.e. cultural values) vary and influence the behaviour of actors and their local interaction.

To conclude, although academics have shown interest in the influence of national culture on a country's innovativeness and success factors influencing the performance of innovation clusters, knowledge on these topics is still scarce and literature on combining these topics is even absent. Existing literature is lacking insight into the influence of national culture on the performance of innovation clusters in developing countries. Moreover, research has been focused on conceptual theory building rather then empirical cases while the application of these theories is pertinent to build better academic evidence.

This study uses the theoretical concepts to gain insight in the influence of Moroccan and Dutch culture on the performance of an horticultural innovation cluster in the Sous-Massa region. This knowledge can be used to further develop the theoretical understanding of the relation between culture and innovation clusters in developing countries. Furthermore, the insights can be used to optimize the development of the horticultural sector of Sous-Massa, the Greenport Agadir program and the cooperation between the Dutch and Moroccan actors.

3. Method

The research design is shown in figure 4 and further explained in the subsections. The chapter starts with a description of the data collection, then the data analyses is described.

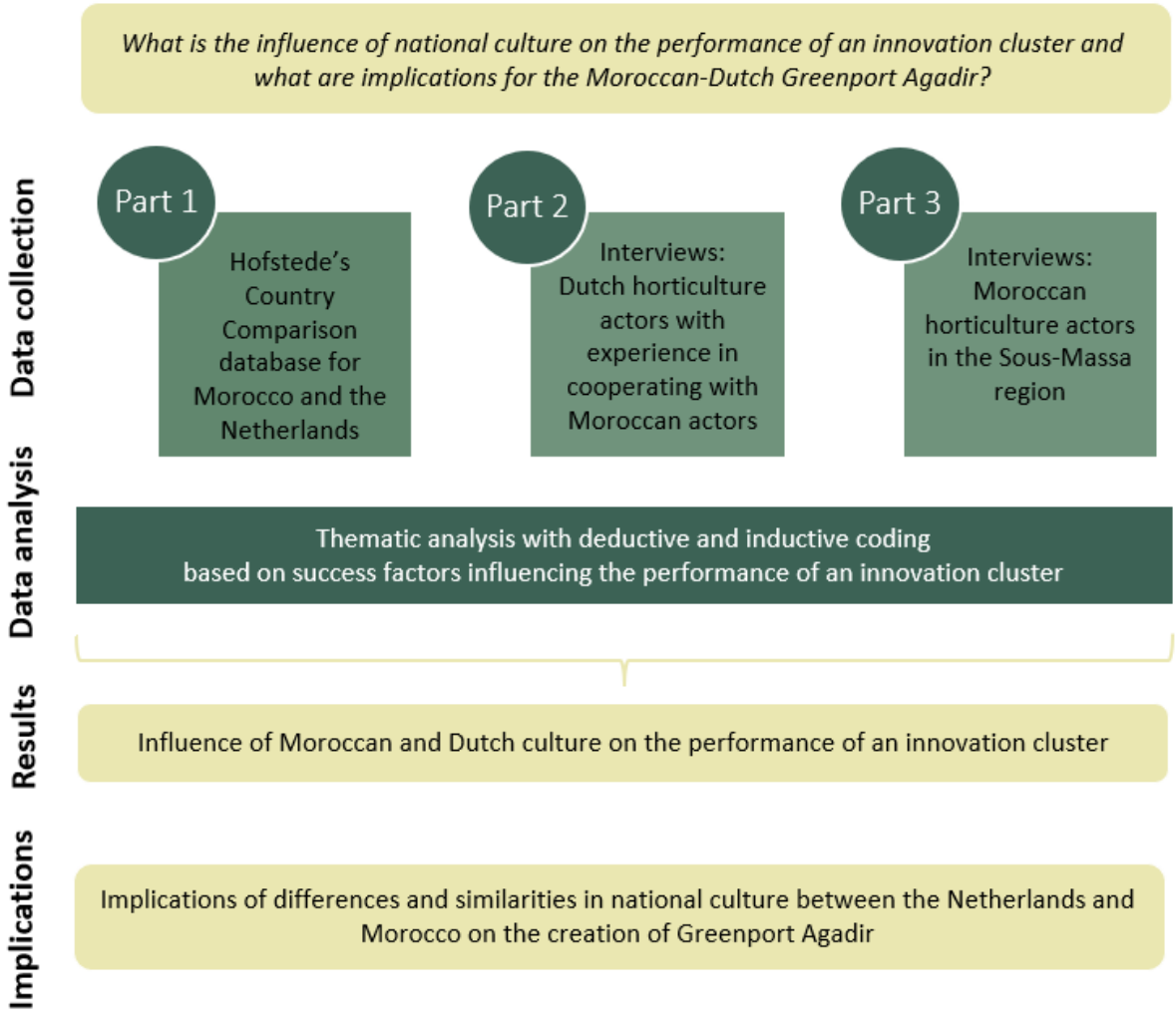

Figure 4: research design

3.1 Data collection

Qualitative data is collected as this provides a well-grounded understanding of the research question (Castleberry & Nolen, 2018a). First, Hofstede's Country Comparison database is consulted as exploratory data to gain deeper understanding of the national cultural differences between Morocco and the Netherlands. These findings are used to compose a semi-structured interview guide. Second, interviews with Moroccan and Dutch horticultural actors are conducted to gain insight in the influence of national culture on the horticultural innovation cluster in the Sous-Massa region. Below, the two types of data collection are further explained.

3.1.1 Hofstede's Country Comparison database

Hofstede's Country Comparison tool is consulted to gain insight in the scores of Morocco and the Netherlands per cultural dimension. Hofstede's research team assigned relative country scores on a scale of 1-100 for every dimension and supported the scores with explanations (Hofstede Insights, n.d.-b). According to Hofstede Insights (n.d.-b) the model can be used to understand a country's cultural values and how cultural differences between countries can effect the working environment.

The scores are originally based on Hofstede's research about employee value scores within IBM between 1967 and 1973 (Hofstede Insights, n.d.-b). The first results were published by Hofstede (1984, 2001). The data for the dimension indulgence is extracted from the research *Cultures and Organizations, Software of the Mind* (2010), by M. Minkov (Hofstede Insights, n.d.-a). Over the years the database has been developed with several studies from multiple researchers to validate the results (Hofstede Insights, n.d.-b). The references of these follow-up studies are not openly shared. Hofstede Insights' research team has complemented the data by additional studies and projects (Hofstede Insights, n.d.-a).

The Country Comparison tool is used to indicate the national dimensions on which Morocco and the Netherlands are not aligned, as these differences might negatively influence the development of the innovation cluster. These findings are used to complement the interview guide.

3.1.2 Interviews

Interviews are conducted to analyse the influence of national culture on the innovation cluster in the Sous-Massa region. In total, nineteen actors are included of which eleven Moroccan actors and eight Dutch actors.

At the moment only a few Moroccan actors are included in the Greenport Agadir project. Therefore, both stakeholders of the Greenport Agadir as well as actors outside this program are interviewed. Moreover, interviewing actors outside the program allows to gain better understanding of the horticultural innovation cluster in the Sous-Massa region as a whole. The respondents are selected in consultation with a leading actor in the Greenport Agadir and by using snowball sampling i.e. asking interviewees about other relevant stakeholders. Table 4 shows an overview of the respondents.

Table 4: respondents per country

	Morocco		**The Netherlands**	
Actor group	**Actors (n)**	**Individuals (n)**	**Actors (n)**	**Individuals (n)**
Grower associations	4 *[MGA-A, -B, -C, -D]*	5	1 *[DGA]*	1
Technology suppliers	1 *[MTS]*	1	3 *[DTS-A, -B, -C]*	3
Knowledge institutes	3 *[MKI-A, -B, -C]*	11	1 *[DKI]*	1
Governmental institutes	3 *[MGI-A, -B, -C]*	8	-	-
Consulting firms	-	-	3 *[DCF-A, -B, -C]*	3
Total	**11**	**27**	**8**	**8**

The interviews are semi-structured to stimulate open discussion while keeping focus on the research. The interview guideline is focused on collecting insights on differences and similarities in national culture between Moroccan and Dutch actors and their influence on the horticultural innovation cluster in the Sous-Massa region. This is done by asking questions about amongst others knowledge transfer, experience in working with actors from the other country and a selection of Hofstede's cultural dimensions. Appendix A shows the semi-structured interview guidelines.

Interviews with Dutch respondents are conducted in Dutch to avoid language barriers and have taken place in a one-on-one setting. After consent of the respondent, the interviews are recorded and transcribed by using Whisper (local version). The interviews with Moroccan respondents are mainly conducted in English. An interpreter attended the interviews with non-English speaking respondents or interviewees feeling uncomfortable to speak English. Although an interpreter minimizes the language barriers between the researcher and respondent, interpretation mistakes could occur. The

interviews with Moroccan stakeholders took place in a group interview setting including one to five respondents of one organisation and circa ten researchers. The interviews with respondent MGA-C and respondent II of MKI-A are conducted in a one-on-one conversation. Additionally, observations are made during the group interviews. As the Moroccan respondents felt less comfortable with recording the interview, the information is written down manually during the interview and written out extensively afterwards. All interviews are anonymised to secure the respondents' privacy.

3.2 Data analysis

To analyse the data, a thematic analysis is performed. This method is suitable for analysing and reporting themes (Braun & Clarke, 2006; Castleberry & Nolen, 2018b). After conducting the interviews, the transcripts are coded both deductively and inductively by following a three step process: open coding, axial coding and selective coding. This structured coding process reduces the researchers potential confirmation bias. Deductive coding is done by using Hofstede's cultural dimensions as themes and using the theoretical framework for finding the relevant codes and code groups. Although this method decreases the scope of collected data, the data analysis enabled a better focus on the research question. Inductive coding is used to include relevant themes which are not directly related to the theoretical framework. During open coding, each transcript is read and the relevant information is coded. Axial coding entails the clustering of codes into code groups and code groups into themes. In selective coding the relations between the code groups and themes are identified.

Per interview, a summary is provided to enable transparent data analysis. Both within-interview and cross-interview analyses are performed to first identify the important findings per actor and second analyse the variation of the findings across different actors.

4. Results

4.1 Hofstede's country comparison

The cultural dimension scores for Morocco and the Netherlands are shown in figure 5. Overall, the scores for cultural dimensions differ largely between the countries, especially on masculinity, long term orientation and indulgence. Therefore, questions on these dimensions specifically are included in the interview guideline. The difference for uncertainty avoidance is smaller. The scores are assigned on a scale of 1-100, with 100 indicating a strong cultural dimension and 1 a low cultural dimension.

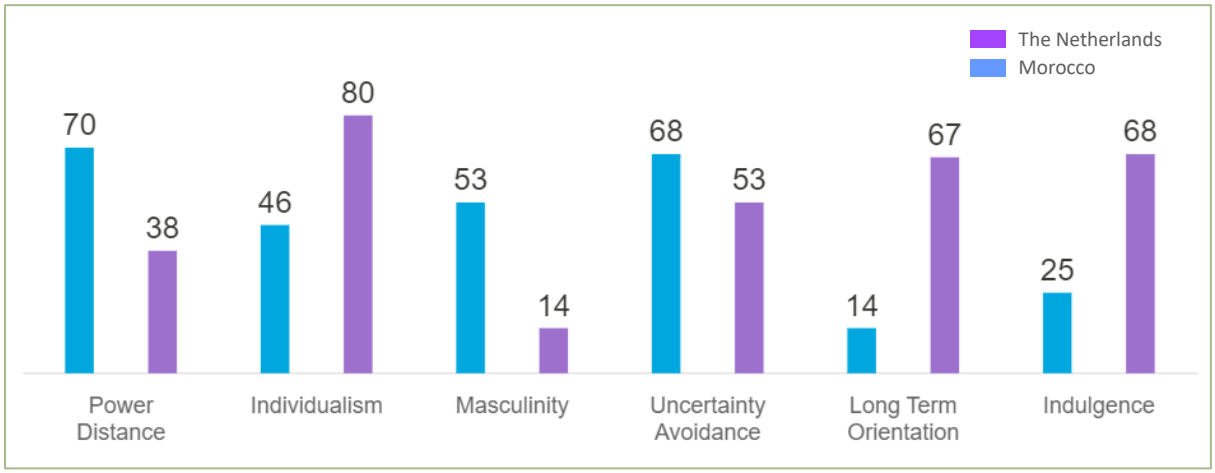

Figure 5: national cultural dimensions Morocco and the Netherlands (Hofstede Insights, n.d.-a)

4.1.1 Power Distance

Morocco scores high on power distance. This indicates a hierarchical society in which centralisation of power is common and individuals accept a fixed hierarchical order. In organisations, leaders act autocratic, subordinates are used to being commanded and inequality occurs regularly. In the Netherlands, power distance is low indicating decentralised power. Centralisation of power only occurs if convenient and accepted. In organisations, independency, equality and coaching leadership are highly valued. Communication is generally direct, informal and participative. (Hofstede Insights, n.d.-a)

4.1.2 Individualism

According to the database, Morocco is a collective society, indicating a strong feeling of group commitment. This can be seen within families as well as among work-relations. Individuals are held responsible for all group members. Therefore, loyalty is highly valued and is sometimes deemed more important then social rules and regulations. Infringement results in feeling ashamed and loss of face. On the contrary, Netherlands is an individualistic society. There is a less tight feeling of group commitment and individuals are expected to only have strong social tights with there inner social circle. Working relations are mainly focused on mutual advantage rather then deeper social connections. Infringement in individualistic cultures leads to a feeling of guilt and loss of self-esteem. (Hofstede Insights, n.d.-a)

4.1.3 Masculinity

On masculinity, Morocco scores intermediate indicating no clear focus on feminine or masculine cultural behaviour. The Netherlands scores very low on masculinity and is thus indicated as a feminine society. Creating a supportive and equal working environment, involving stakeholders in decision-making and striving for quality rather than quantity are main factors of a feminine culture. As a result

discussions are focused on consensus building which need compromises and negotiation. (Hofstede Insights, n.d.-a)

4.1.4 Uncertainty Avoidance

The database indicate that Morocco has a strong preference to avoid uncertainty. Overall, such societies follow rigid social beliefs and norms. As a result societies are hesitant to new ideas and habits. The Netherlands scores intermediate and therefore does not have a strong preference to avoid uncertainties. (Hofstede Insights, n.d.-a)

4.1.5 Long Term Orientation

Morocco scores very low on long term orientation and is a normative culture. There is a focus on quick wins rather then opportunities for the future. Additionally, normative societies highly value tradition and show concerns in confirming the absolute truth. The Netherlands has a strong preference for long term orientation and the society acts more pragmatic. Investing in long term goals and persevering to achieving those goals is common. Moreover, pragmatic societies judge the truth as dependent on context, situation and time. (Hofstede Insights, n.d.-a)

4.1.6 Indulgence

The database indicates that Morocco scores low on indulgence and has a restraint culture. There is a strong connection to cynicism and pessimism. Individuals' behaviour is controlled by social norms. The Netherlands has a strongly indulgent society in which positivism plays a key role. Individuals' feel free to behave and impulses and desires can be realised. (Hofstede Insights, n.d.-a)

4.2 Within-interview analysis

In total, nineteen actors in the Moroccan Horticultural cluster are interviewed, comprising eleven Moroccan and eight Dutch actors. Below, all in-person and group interviews are summarised per actor. Generally, the summary starts with a short description of the respondent and the actor, followed by an explanation of the Moroccan innovation cluster, characteristics of Moroccan and Dutch actors and how this influences the cluster. Each summary closes with an analysis on what the interview summary says about the research question. Appendix B shows an extensive schematic summary of the interview results.

4.2.1 Moroccan Grower association A

The respondent is the farm manager of a low-tech Canarian greenhouse, owned by a cooperative, located in the Sous-Massa region. The cooperative is not included in the impact cluster. The respondent has little experience in collaborating with Dutch actors.

The respondent says that knowledge transfer among growers is common and mainly takes place between growers within the same cooperative. The farm manager explains that berry growers plant little flowers near the berry plants. These flowers attract insects which are beneficial for the berry production. The respondent copied this principle in his vegetable production. The respondent declares that knowledge is currently not shared among growers outside the cooperative. However, the farm manager emphasises that he is open to collaborate with farmers outside the cooperative. Moreover, the respondent explains that knowledge on horticultural innovations and cultivation reach growers via young professionals. The farm managers explains that young professionals leave Morocco after graduating to gain working experience in more sophisticated horticultural sectors and come back after a couple of years to transfer the knowledge to Moroccan farmers. According to the respondent, this is a positive phenomenon. The farm manager expresses his interest in new technologies, but explains that the costs are a barrier to adoption. The respondent declares that he would adopt new technologies if he could afford it. Furthermore, the respondent mentions that the production of some

varieties, i.e. haricots, are purely produced for export. The farm manager explains that the Moroccan mentality is not open to accept new varieties in it's diet.

The respondent emphasises that he is open minded in the relation with Dutch actors. According to the farm manager, Dutch technology companies are mainly focused on profit. The respondent states that he is used to look beyond the sales strategy of these companies and make decisions on what is best for himself.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster, the respondent has little experience in collaborating with Dutch actors and the respondent experiences that Dutch technology companies are mainly focused on profit. These findings indicate weak stakeholder connections between the grower association and Dutch actors. Second, the respondent expresses that knowledge sharing within the cooperative is common while information is not shared outside the cooperative. This indicates strong ties within the cooperative and weaker ties among growers outside the cooperative. Third, the respondent declares that young professionals transfer foreign knowledge on sophisticated horticulture to Moroccan growers.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. As explained above, the respondent describes a difference in knowledge sharing among growers within and outside the cooperative. Growers within a cooperative are connected, creating a socio-centric feeling. This is supported by the Moroccan cultural tendency for collectivism. Collectivism has a positive influence on the innovation cluster as it stimulates interactive learning. The lack of knowledge sharing outside the cooperative can be related to a feeling of competition. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded.

4.2.2 Moroccan Grower association B

The respondent works at a Moroccan branch organisation for growers, which is included in the impact cluster. The association represents the interests of the Moroccan growers by e.g. performing independent research, demonstrate technologies, provide training and participating in governmental discussions. The respondent has experience in collaborating with Dutch actors.

The respondent emphasises that the association acts as an independent R&D centre enabling transparent research results. The association collaborates with private international companies and knowledge institutes to bring innovations to Morocco and set up experiments. The respondent explains that the research results are shared with farmers through demonstrations, trainings, presentations and digital media. According to the respondent, conducting research on innovations and demonstrating them positively influences the growers' decision on adopting technologies. The respondent declares that growers generally invest in technologies if they are convinced of the relative advantage, are able to observe the technology and can afford the investment. The respondent states that growers have to adopt technology to increase the production and lower the resource use instead of expanding in terms of hectares.

Moreover, the respondent explains that the association offers training to use these technologies. The research, demonstration and training practices mentioned by the respondent are a reaction on the growers' present needs rather than strategic long term projects. Additionally, the respondent explains that the association stimulates knowledge exchange and collaboration among growers. In the past,

sharing knowledge was not common among growers. Nowadays, growers share knowledge during lunch in a café and invite each other at their firms. According to the respondent, growers collaborate with each other as it benefits themselves, e.g. a neighbour grower uses chemicals which are taken by the wind to another growers' land. The last grower is willing to exchange knowledge on biological treatment as his own yield is effected by the chemicals of the neighbour.

Although the association participates in governmental discussions, the respondent declares that both parties do not share the same view on the sector and it's development. According to the respondent, the government invests in the wrong projects to stimulate sectoral change.

The grower association collaborates with Dutch technology companies. The respondent states that these companies are mainly focused on making profit. According to the respondent, the relation is good as long as the Dutch technology companies do not cheat. The respondent emphasises that building trust is pertinent to build a good collaboration. Additionally, the respondent requests an open table conversation between Moroccan and Dutch stakeholders to develop a shared mission on production and a fair and secure market. At the moment, EU governments prohibit Moroccan yield if the local production is high, if the local production is low, Moroccan products are demanded. As a result, the income of Moroccan growers is highly reliable on the fluctuating and non-reliable demand of EU governments. With a shared mission on a fair market, the respondent is hoping to create a secure financial situation for growers enabling them to make investments in technology.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is included in the impact cluster, the respondent has experience in collaborating with Dutch actors and the respondent experiences that Dutch technology companies are mainly focused on profit. These findings indicate moderate ties between the grower association and Dutch actors. The respondent demands an open table discussion with the EU governments, showing the actor's interest to improve the communication between the EU and Moroccan stakeholders. Second, the branch organisation represents the local growers and shares knowledge with these growers through several activities, indicating strong ties with the local growers. Third, the respondent indicates that growers share knowledge for individual benefits indicating somewhat interactive learning through weak ties. Fourth, stakeholder ties can be recognised between the grower association and private international companies and knowledge institutes. Last, the respondent declares that a shared vision among growers and the government is missing, indicating weak stakeholder ties.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, a short-term orientation can be recognised as the branch organisation is focused on fulfilling growers' present needs rather than long-term projects. This result is supported by the Moroccan cultural tendency for short-term orientation. The reactive behaviour has a negative influence on the innovation cluster as innovation requires monitoring and a future-orientation. Second, the respondent expresses that growers share knowledge to gain personal benefits. This indicates that although knowledge sharing shows cooperation, growers are competitive. The result is supported by the Moroccan tendency of both showing feminine and masculine behaviour. The feminine oriented interactive learning has a positive influence on the clusters' success as growers start to exchange knowledge. However, the masculine competitive motive can be deemed negative as growers might not share knowledge if it harms their own business. Third, a shared mission among Moroccan growers and governmental bodies is missing. This could be declared by individualistic behaviour as the stakeholders are not connected and therefore act ego-centric. However, this is not

supported by the Moroccan cultural tendency for collectivism. The individualistic behaviour has a negative influence on the cluster as a shared mission and collaboration are needed for sectoral change.

4.2.3 Moroccan Grower association C

The respondent is a farm manager at a horticultural cooperative in the Sous-Massa region. This entails that he supervises multiple farms/greenhouses. The cooperative owns multiple farms in the Sous-Massa region. Moreover, the association has a R&D department in which new opportunities and the adaptation of western technology is studied in the local context. The actor is not involved in the impact cluster and the respondent has no experience in collaborating with Dutch actors.

Farm managers visit their greenhouses once or twice a week. During the visit, the farm managers discus current problems effecting the yield e.g. diseases and water scarcity with the farmers. Weekly the farm managers within the cooperative have a meeting with the head of production. Moreover, the farm managers attend meetings with other departments like HR, packaging and quality control in which the problems of the month are discussed. The respondent declares that he is mainly focused on ad-hoc problems during the day, week or month while the director of the cooperative is focused on long-term activities. The director is also at the table with governmental institutes, a branch organisation and other actors. The respondent explains the following organigram: top management -> director of production -> units farm managers -> managers of individual farms. The latter is the employee performing cultivating activities. The respondent emphasises that there is a hierarchical top-down management structure in which the top management decides on the implementation of new technologies and processes. Moreover, the respondent declares that this is a common structure for horticultural cooperatives in Morocco.

According to the respondent, knowledge transfer is common between farms and farm managers within the cooperative. This is mainly done by organising meetings with employees from different farms and departments. The respondent states that there is little knowledge transfer and collaboration between farms outside the cooperative.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondent has no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the grower association and Dutch actors. Third, the respondent expresses that knowledge sharing among farms and various departments within the cooperative is common while information is not shared outside the cooperative. This indicates strong ties within the cooperative and weaker ties among growers outside the cooperative. Fourth, the respondent describes stakeholder ties among the cooperative's top-management and stakeholders like governmental bodies and the branch association.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, a hierarchic organisational structure with top-down management can be recognised in the cooperatives' organigram. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Second, as explained above, the respondent describes a difference in knowledge sharing among growers within and outside the cooperative. Growers within a cooperative are connected, creating a socio-centric feeling. This is supported by the Moroccan cultural tendency for collectivism. Collectivism has a positive influence on

the innovation cluster as it stimulates interactive learning. The lack of knowledge sharing outside the cooperative can be related to a feeling of competition. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded.

4.2.4 Moroccan Grower association D

The respondents are farm managers at horticultural cooperatives in the Sous-Massa region. This entails that they supervise multiple farms/greenhouses. The farm managers jointly follow classes at a Moroccan university. The actors are not involved in the impact cluster and the respondents have no experience in collaborating with Dutch actors.

Yield is the main key performance indicator for farm managers. The farm managers aim for a higher production and if possible decreasing their water use. The respondents declare that the costs are their main barrier to adopt innovations. They emphasise to be open to adopt innovations to make their greenhouses more sustainable if they can afford the investment. For the later, the respondents state that they need financial support. The respondents explain that the government provides subsidy for growers to use drip irrigation. However, this resulted in 30% more water usage in the farms as it became easier to use water.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actors are not included in the impact cluster and the respondents have no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the grower associations and Dutch actors. Second, due to the joint classes, knowledge is shared between the university and farm managers and among farm managers from various cooperatives.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. Farm managers are mainly focused on yield, a short-term oriented problem, and secondly on water use reduction, a longer-term oriented problem. This is supported by the Moroccan cultural tendency for short-term orientation. The reactive behaviour has a negative influence on the innovation cluster as innovation requires monitoring and a future-orientation.

4.2.5 Moroccan technology supplier

The respondent works at an organisation that acts as a platform for innovation and technology transfer in the Sous-Massa region. The actor is not included in the impact cluster. The respondent has little experience in collaborating with Dutch actors.

The actor aims to boost innovation in the agricultural sector by facilitating the cooperation between national and international public and private actors like funding institutions, technology companies, branch organisations, knowledge institutes etc. These collaborations are focused on projects targeting water saving solutions, biological control, waste management and solutions increasing the yield. According to the respondent, understanding the relative advantage and being able to observe these advantages stimulated growers to adopt technologies. The respondent emphasises that training is necessary to educate growers on using new technologies. The respondent state that currently, growers often think that the relative advantage worth the high financial investment.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondent has little experience in collaborating with Dutch actors, indicating weak stakeholder ties between the Moroccan

technology supplier and Dutch actors. Second, the actor facilitates communication and the development of stakeholder ties among various national and international public and private actors.

In the data, no elements of national culture potentially influencing the innovation cluster are recognised.

4.2.6 Moroccan knowledge institute A

All respondents work or study at a Moroccan educational institute, located in the Sous-Massa region. The institute is included in the impact cluster. Some respondents have experience in collaborating with Dutch actors.

Group interview

The respondents state that the horticulture sector is responsible for nearly 13% of the Moroccan GDP. Furthermore, the respondents state that 80% of Moroccan horticulture is done in the Sous-Massa region. The actor collaborates with local and international growers, cooperatives and universities for research and internships for students. The respondent explains the Moroccan aggregation model which is part of the governmental programs. This model aims to build support for smaller farmers, stimulating the adoption of technology. This is done by stimulating collaboration between small farmers and larger growers and other private organisations. According to the respondents 40% of the small farms make use of this aggregation model.

According to the respondent, the aim of the impact cluster is to increase the local production and stimulate efficient resource use, e.g. use less water.

Individual interview I

The knowledge institute has built a building for an incubator of horticultural innovations. The building is finished a couple of months ago. At the moment the building is not used yet as the furniture and other facilities are missing. The respondent states that the building might be used next year as it takes time to make the building a useful working space. The respondent emphasises the mission which is to bring students to the incubator and stimulate them to develop innovations. The respondent declares that a roadmap with deliverables to guide the development of the building is not present. In Agadir, there already is an incubator present which guides some horticultural start-ups. The respondent explains that there is no communication with the existing incubator yet, but that the institution has the aim to collaborate with this actor. The respondent referred to his superior for more detailed information on the development of the incubator.

According to the respondent, high investment costs and a lack of knowledge are the main barriers to the adoption of technologies. Furthermore, the respondent indicates that language is a barrier as older growers often do not speak English. Additionally, the respondent emphasises that the concept ‘sustainability’ is too broad and difficult to understand for farmers. Therefore, he stated that farmers are more focused on yield and do not consider sustainability.

The institute has relations with multiple Moroccan actors within the Sous-Massa region and nationally. These collaborations are amongst others focused on research in general and R&D projects.

The respondent emphasises that Morocco has a more open culture then other Arabic countries and that as a result the cultural differences between Morocco and European countries are minimal. The institute has strong relations with knowledge institutes from Mediterranean parts of Europe as there is a long history between those countries. The respondent indicates that this history makes the

communication easier between those parties. According to the respondent, the Dutch and Moroccan government should stimulate the intercountry public-private partnerships.

The respondent experiences that Moroccan people are generally relaxed and enjoy making jokes and fun during working conversations. He experiences that Dutch people make some jokes, but are generally serious, direct and strict in their work. However, the respondent emphasises that within Morocco slight cultural differences can be seen. He describes the example that Amazigh Moroccans from the North are more direct like the northern European countries and these Amazigh communities mainly migrated to Europe.

Individual interview II

The respondent explains that the Sous-Massa region faces multiple challenges related to the horticultural sector like lack of climate control, water scarcity, food waste and a low yield in the winter months when the product prices are high. The respondent states that the actor has the following focus in chronological order: 1) make profitable mid-tech greenhouses; 2) increase the yield per square meter; 3) enable sustainable water consumption; 4) improve food quality and 5) increase the yield during winter. The respondent argues that the adoption of technologies and knowledge transfer are necessary to reach these aims.

According to the respondent, the aim of the impact cluster is to demonstrate technology, educate growers and provide PhD positions. The respondent emphasises that demonstrating technologies is important as the costs for adopting technology is high and growers often do not see the relative advantage.

Students

According to the respondents, the costs, relative advantage and observability are the most important aspects to take into account when convincing growers to adopt new technologies.

The students experience a language barrier when collaborating with Dutch actors. They indicate that Dutch people speak English well, but Moroccan people mostly speak French and a few people speak English. They declare that not all Moroccan teachers speak English well. When having classes in English, students experience difficulties when converting knowledge from French to English and vice versa.

The respondents appreciate the open attitude of Dutch actors. The students explain that Dutch actors repeat their explanation until the students understand and sometimes use humour in their conversations. According to the respondents, the new Moroccan generation shares this open attitude, while older Moroccan generations have a strict attitude. However, the students indicate that Dutch people are very strict with respect to time and appointments while Moroccan people are not good with time. Additionally, the respondents experience that although Dutch people have an open attitude, they show physically distant behaviour while Moroccan people are more physical, i.e. give each other a kiss or hug when greeting.

The students indicate that in Morocco, respect for hierarchy and elder people is highly valued. The respondents declare that all employees have respect for the management layers ranked above their individual position. Moreover, this hierarchy is an important factor in the decision-making. The students explain that often a highly ranked individual tries to get involved in the decision-making in the lower layers of the organisational structure while this individual does not have the right knowledge to make an informative decision. Within knowledge institutions the respondents describe that Moroccan students use Sir and Professor when talking to their teachers while the Dutch teachers

prefer to be called by their first name without a title. Moreover, the respondents state that they would never contradict a teacher and emphasise that they were shocked when they observed that this is common among Dutch students and teachers.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is included in the impact cluster and respondents have experience in collaborating with Dutch actors, indicating strong stakeholder ties between the Moroccan knowledge institute and Dutch actors. Second, the knowledge institute has strong stakeholder ties with local and international horticultural stakeholders, e.g. on research and internship projects. The institute has no connection with the local incubator yet, but aims to collaborate in the future. Third, the respondent explains about the Moroccan aggregation model (a policy instrument) stimulating strong ties between small growers and large growers or other private organisations.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, language differences are experienced between Moroccan and Dutch actors. Most Moroccan people speak French and only a few citizens speak English. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve. Second, differences in punctuality are experienced between Moroccan and Dutch actors. This difference might lead to antagonistic labour relations, negatively influencing the innovation cluster. Third, a hierarchic organisational structure with top-down management can be recognised in the cooperative's organigram. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation.

4.2.7 Moroccan knowledge institute B

The respondent works at a Moroccan educational institute, located outside the Sous-Massa region. The institute is not included in the impact cluster. The respondent has little experience in collaborating with Dutch actors. The respondent explains that the institute offers education and performs research in the horticultural field. The educational institute performs these activities without collaboration with horticultural actors in the Sous-Massa region. The respondent emphasises that the institute is open to such collaborations but does not have any plans for collaboration at the moment.

The respondent states that there is a lack of collaboration and coordination between the Moroccan ministries of agriculture and energy. The respondent declares that an integrated system of water, energy and food is needed to develop sustainable sectors. The respondent provides the example that energy is needed for the desalination of water and irrigation of land for food production. Furthermore, the respondent states that technology adoption by growers is necessary for sectoral change. The respondent emphasises that the costs are not an issue the grower. The respondent declares that the growers have the mentality that they are not open to change as long as their yield is at least minimally profitable.

According to the respondent, mutual respect for cultural differences among Moroccan and Dutch actors is an highly important value. The respondent mentions the difference in punctuality by explaining that Moroccan people, especially in the smaller cities and the south of Morocco, are less strict in time than Dutch people.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondent has little experience in collaborating with Dutch, indicating weak stakeholder ties between the Moroccan knowledge institute and Dutch actors. Second, the knowledge institute is located outside the Sous-Massa region and has weak stakeholder ties with Moroccan actors in the Sous-Massa region. Third, the respondent indicates weak stakeholder ties between the Moroccan ministries of agriculture and energy while an integrated system is needed.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, differences in punctuality are experienced between Moroccan and Dutch actors. This difference might lead to antagonistic labour relations, negatively influencing the innovation cluster. Second, the respondent indicates that a shared mission among the Moroccan ministries of agriculture and energy is missing. This could be declared by individualistic behaviour as the stakeholders are not directly connected, have their own interests and therefore act ego-centric. However, this is not supported by the Moroccan cultural tendency for collectivism. The individualistic behaviour has a negative influence on the cluster as a shared mission and collaboration are needed for sectoral change.

4.2.8 Moroccan knowledge institute C

The respondents work at a Moroccan research institute, located amongst others in the Sous-Massa region. The institute is not involved in the impact cluster. The respondents have no experience in collaborating with Dutch actors.

The respondents explain that the research is mainly focused on the adaptation of western technologies in the local context. The respondents state that technology adoption is expensive to the local growers and local adaptation is necessary to stimulate the adoption. According to the respondent, transferring knowledge to local farmers is a difficult process because i.e. some farmers are analphabetic. The respondent emphasises that because of the difficult process, knowledge often does not completely reach the growers. Therefore the institute also transfers knowledge to stakeholders like the Chamber of Agriculture. The respondent states that the research agenda is determined in cooperation with the branch organisation. Furthermore, the respondent explains that the institute collaborates with national and international agricultural knowledge institutes, except for Dutch institutions so far.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondent has no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the Moroccan knowledge institute and Dutch actors. Second, actor uses several methods to communicate with growers. Nonetheless, the respondent experiences difficulties in communicating all knowledge to growers, indicating moderate stakeholder ties between the knowledge institute and local growers. To bridge this gap, the actor transfers knowledge to other stakeholders with ties to the local growers. Third, the actor has a strong stakeholder tie with the branch organisation as they together determine the research agenda. Fourth, the actor has stakeholder ties with national and international agricultural knowledge institutes.

In the data, no elements of national culture potentially influencing the innovation cluster are recognised.

4.2.9 Moroccan governmental institute A

The respondents are working at a Moroccan governmental institute focused on the development and implementation of horticultural related policies in the Sous-Massa region. The institute is not involved in the impact cluster and the respondents do not have experience in collaborating with Dutch actors.

Until 2020 the Moroccan government have executed the plan Green Morocco. From 2020 till 2030 the New Generation plan followed. Both plans are focused on the development of the agricultural sector. The respondents declare that a roadmap on achieving the visions explained in these plans is not present. According to the respondents, young people and woman are underrepresented among decisionmakers in farms. Therefore, the new generation plan is focused on giving opportunities to young people. The institute collaborates with Moroccan universities and research institutes to collect ideas and define a strategy to reach young people and transfer new ideas to growers. Moreover, the respondents declare that growers branch organisations and other stakeholders are involved in defining a shared mission for the agricultural sector. According to the respondents, growers are open minded to technology and are willing to invest if they understand the relative advantage.

The agricultural sector is a main water user in the Sous-Massa region. Therefore, the desalination plant is under management of the ministry of agriculture. The respondents declare that the water basin agency is not focused on agriculture and therefore does not have the knowledge to operate the desalination plant. According to the respondents, the ministry of agriculture is the best supervisor for the plant as the institute has knowledge about the main water user in the region. To stimulate growers to use desalinated water instead of groundwater the ministry of agriculture is developing a tax on a maximum quota of groundwater use. The tax will be around three times the price of desalinated water.

The respondents declare that Dutch help is welcome for example by hosting seminars and workshops, demonstrating technologies and starting partnerships with public and private actors. The respondents emphasize that Dutch actors must visit Morocco to understand the local context and vice versa.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondents have no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the Moroccan governmental institute and Dutch actors. Second, the respondents declare that the branch organisation and other stakeholders are involved in defining a shared mission for the agricultural sector, indicating the existence of stakeholder ties. The actor has strong ties with Moroccan universities and research institutes as they jointly collect ideas and define strategies to reach young professionals and growers.

In the data, no elements of national culture potentially influencing the innovation cluster are recognised.

4.2.10 Moroccan governmental institute B

The respondents are working at a Moroccan governmental institute focused to the management and development of water in the Sous-Massa region. The institute is not involved in the impact cluster and the respondents do not have experience in collaborating with Dutch actors.

The agricultural sector uses more than 90% of the drinking water in the Sous-Massa region. As for the water scarcity, the government has forbidden to expand horticultural area's since 2007. Until recently, the sector mainly used groundwater. Nowadays, the horticultural sector mainly uses water from the

desalination plant and dams. In 2021, the desalination plant located in the Sous-Massa region became operational. At first the plant was under command of the water basin agency (ABHSM). The respondents declare that as a matter of governance, the management of the plant is reallocated to the ministry of agriculture (ORMVA). According to the respondents, this makes the processes easier as the horticultural sector is the main water user in the Sous-Massa region. The government tries to push growers to mainly use desalinated water. Additionally, they set an commitment to growers when using desalinated water: growers need to take a minimal fixed amount of water per hectare. The institute transfers knowledge to growers through in-person contact, presentations and online media.

The respondents declare that there is a lot of debate to develop a shared vision and strategy on water use in the Sous-Massa region. Organisations like the ministry of agriculture, the water basin agency, the water user agencies and branch organisations are involved in these discussions. The respondents emphasise that all stakeholders defend their own needs and therefore aligning the needs in a shared vision is difficult. Nevertheless, the respondents state that there is a national master plan (PDAIRE) on decreasing the water deficits. Moreover, there is an agreement made amongst actors in the Sous-Massa region including visions on R&D, the use of new technologies and the water use among growers.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondents have no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the Moroccan governmental institute and Dutch actors. Second, the institute communicates with growers through various activities. Third, the respondent indicates that there is a lot of debate between the ministry of agriculture, the water basin agency, water user agencies and branch organisations. Although there is communication between these stakeholders, the debate indicates weak ties.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. Defining a shared mission among the water basin agency, ministry of agriculture, water user agencies and branch organisations is difficult. The respondents declare that the stakeholders defend their own needs. This could be declared by individualistic behaviour as the stakeholders are not connected and therefore act ego-centric. However, this is not supported by the Moroccan cultural tendency for collectivism. The individualistic behaviour has a negative influence on the cluster as a shared mission and collaboration are needed for sectoral change.

4.2.11 Moroccan governmental institute C

The respondents are working at a Moroccan governmental institute focused on product quality and safety in the food sector. The institute is not involved in the impact cluster and the respondents do not have experience in collaborating with Dutch actors.

The institute shares knowledge with growers through in-person contact via local offices, presentations, online media and though a branch organisation. Besides, the institute has bilateral relations with the European Commission, but not with the Netherlands specifically.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is not included in the impact cluster and the respondents have no experience in collaborating with Dutch actors, indicating weak stakeholder ties between the Moroccan

governmental institute and Dutch actors. Second, the institute communicates with growers through various methods. Third, the organisation has stakeholder ties with the European commission.

In the data, no elements of national culture potentially influencing the innovation cluster are recognised.

4.2.12 Dutch grower association

The respondent works at a Dutch grower association which is involved in the impact cluster. The respondent has little experience in collaborating with Moroccan actors, mainly with a grower and distribution firm. The actor's motive for starting business in Morocco, is to increase their market potential of commodity products and production during winter (i.e. when the operational costs are high in the Netherlands).

According to the respondent, the aim of the impact cluster is to create sectoral change by amongst others demonstrating technologies, stimulating knowledge transfer and providing training. The respondent explains that at the moment little knowledge is shared among Moroccan growers. The respondent emphasise that this is caused by competitive behaviour between cooperatives and even to some extend between production locations within cooperatives. He declares that mainly the older generation of growers is more traditional and focused on individualism. Among Dutch growers, knowledge sharing and participating in working groups is common.

The respondent expresses that understanding the local context and culture enhances the collaboration between Dutch and Moroccan actors. The respondent explains that Dutch people use direct communication while Moroccan people use indistinct communication. As a result, understanding each other's motives is a time-consuming process. The respondent emphasises that building trust, showing respect and frequent contact moments are necessary to build a good collaboration. Moreover, he experiences that in-person visits enable private conversations which stimulate more open and clear communication. Additionally, the respondent explains that Dutch actors must be aware of the Moroccan religion and the influence on business, e.g. during Ramadan Moroccans work less.

According to the respondent, Dutch organisations have a long-term orientation with both short- and long-term deliverables. The respondent recognizes a short-term orientation among Moroccan stakeholders as they are more focused on ad-hoc problems resulting in short-term strategies. The respondent explains that Dutch organisations often have a somewhat flat structure and decisions are made in a team and trough consensus. Among Moroccan organisations, the respondent recognizes a more hierarchical structure in which decisions are made top-down. He explains that the farm owner plays an important role in decision-making.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is included in the impact cluster and the respondent has little experience in collaborating with Moroccan actors, indicating the existence of stakeholder ties between the Dutch grower association and Moroccan actors. Second, the respondent states that little knowledge is shared among Moroccan growers, indicating weak ties among growers.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, in Morocco little knowledge is shared among cooperatives and sometimes even within the cooperative because of a feeling of competition, indicating masculine behaviour. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions.

The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded. In the Netherlands, knowledge sharing and participating in working groups is common among growers. This is supported by the Dutch cultural tendency for femininity. The femininity has a positive influence on the innovation cluster as information is shared interactively and multiple stakeholders are included. Second, Moroccan actors are focused on ad-hoc problems and short-term strategies. This is supported by the Moroccan cultural tendency for short-term orientation. The reactive behaviour has a negative influence on the innovation cluster as innovation requires monitoring and a future-orientation. Dutch actors are mainly long-term oriented with short- and long-term deliverables. This is supported by the Dutch cultural tendency for long-term orientation. The long-term orientation influences the innovation positively as monitoring and future-orientation are supported. Third, a hierarchical organisational structure with top-down decision-making is recognised in Moroccan organisations. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. In the Netherlands, actors have a somewhat flat organisational structure where consensus is highly valued in the decision-making. This result is supported by the Dutch cultural tendency for low power distance. The consultative institutional tendency has a positive influence on an innovation cluster as multiple opinions are included in the decision-making and idea generation is supported.

4.2.13 Dutch technology supplier A

The respondent works at a Dutch technology supplier which is involved in the impact cluster. The respondent has experience in collaborating with Moroccan actors, mainly with growers across the country and a knowledge institute from the Sous-Massa region. The actor's motive for starting business in Morocco, is to stimulate sustainable food production and expand their own sales. The respondent emphasises that the actor sees itself as part of an integrated solution of multiple Dutch technologies in which the collaboration of all actors creates a strong market position.

According to the respondent the aim of the impact cluster is to create sectoral change via amongst others knowledge transfer and technology demonstration. The respondent points out that the first is a time intensive process in which training employees and adapting technologies to the local context are key activities. The respondent experiences that the most Moroccan growers are interested in Dutch technology and cultivating processes. Other growers, mainly elderly, are more traditional and less open to new technology.

When transferring Dutch technology to Moroccan growers, training in using the technologies is highly necessary according to the respondent. The respondent explains "[…] changing the mentality, was the biggest obstacle in the way, than the knowledge itself. That was just a […] system that people were actually used to, that suddenly had to be completely reversed 180 degrees.". The actor has trained local technicians building a local business unit. The respondent explains that this team visits the growers often to coach them during the season. The respondent emphasises that because of this time consuming process, a strong relation with the growers is build. Moreover, the actor transfers knowledge by giving presentations to growers.

As a diasporic individual, the respondent emphasises that it is easier for him to understand the local context. He states that the cultural differences are observable in a working environment and Dutch actors should adapt to the local context. Moreover, the respondent says "What is important, is that the Moroccan grower does not want to feel belittled.". Moroccan growers often ask to be convinced by the respondent as they want to fully understand the situation or technology. The respondent

explains that Dutch actors must not see this as an attack. Moreover, he emphasises that Dutch actors must be aware that Dutch people communicate very directly and that more nuanced communication is needed to fit the Moroccan culture. The respondent declares that mutual respect is an important value to build a relation.

According to the respondent, Dutch growers act on a long-term orientation while Moroccan growers often have a short term orientation. The respondent explains that Dutch growers invest in technology for 20-25 years, while Moroccan growers invest in technology that is amortized within five years. Moreover, the respondent declares that age plays a role in the short vs long term orientation as Moroccan elderly do not want to invest in the long term, while young growers are more willing to invest in technologies with a long return-on-investment. Additionally, the respondent declares that Moroccan growers show dynamic opportunistic behaviour on which crops they cultivate. The Moroccan growers often start cultivating other crops when this leads to higher revenue on the market.

The respondent experiences a flat organisational structure in Dutch organisations in which bottom-up decision-making is stimulated. In Morocco, the respondent mainly recognises a hierarchical organisational structure in which decisions are made top-down. However, he declares that pioneering organisations often show more decentralised decision-making in which individuals are allowed to make decisions on their own deliverables.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is included in the impact cluster and the respondent has experience in collaborating with Moroccan actors, mainly with growers across the country and a knowledge institute. This indicates the existence of stakeholder ties between the Dutch technology supplier and Moroccan actors. The respondent declares that the actor has strong ties with the local growers as they use various activities to exchange knowledge with growers in a time-consuming process. Moreover, the actor shows strong stakeholder ties with other Dutch technology suppliers operative in Morocco.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, Moroccan actors are mainly focused on short-term investments. The new generation shows this tendency less. The short-term focus is supported by the Moroccan cultural tendency for short-term orientation. The behaviour has a negative influence on the innovation cluster as a future-orientation is required to understand the long return-on-investment and stimulate technology adoption. Dutch actors are mainly oriented on long-term investments. This is supported by the Dutch cultural tendency for long-term orientation. The long-term orientation influences the innovation positively as future-orientation stimulates technology adoption. Second, a hierarchical organisational structure with top-down decision-making is recognised in Moroccan organisations. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. In the Netherlands, actors have a flat organisational structure with bottom-up decision-making. This result is supported by the Dutch cultural tendency for low power distance. The consultative institutional tendency has a positive influence on an innovation cluster as multiple opinions are included in the decision-making and idea generation is supported.

4.2.14 Dutch technology supplier B

The respondent works at a Dutch technology supplier which is involved in the impact cluster. The respondent has experience in collaborating with Moroccan actors, mainly with Moroccan technology

firms and a knowledge institute. The actor's motive for starting business in Morocco, is to stimulate sustainable food production and expand their sales.

According to the respondent the mission of the impact cluster is to create sectoral change via knowledge transfer, training and technology demonstration. The respondent explains that by training students to use new technologies, the program aims to stimulate the new generation to cultivate with advanced techniques. This is important as the respondent experiences that most current growers show conservative behaviour. Additionally, the respondent states that costs are a major barrier to technology adoption. He explains that Moroccan growers have not learned to invest as borrowing money is prohibited in the Islam. Therefore, the respondent declares that the impact cluster should demonstrate technologies and explain the relative advantage and return on investments. Moreover, the respondent states that governmental interference is necessary to stimulate sectoral change.

The respondent expresses that being familiar with the local language, values and beliefs makes it easier to collaborate as the Moroccan cultural beliefs are distant from the Dutch cultural beliefs. The respondent explains that Dutch people use direct communication, e.g. pushing decisions and achievements, which can be experienced as insulting by the Moroccan people. He emphasises that "The moment you reach that point, in doing business in Morocco, you will not be able to move forward or backward.". The respondent declares that respect, patience and gratefulness are important values to create a good collaboration with Moroccans. Additionally, the respondent experiences that Dutch people are more punctual in time and making progress then Moroccan people.

According to the respondent, Moroccan growers have a short-term orientation as "[…] in the Arab world, someone who invests, he wants returns tomorrow.". However, the technologies require long-term investments. Moreover, the respondent experiences that growers show competitive individualistic behaviour.

The respondent recognises a hierarchical structure with top-down management in Moroccan organisations. He explains that the communication is "[…] is really very difficult, because there is only one person who is allowed to talk, actually.". Moreover, the respondent explains that the top-down management system sometimes results in project delays as only the top-management is allowed to make decisions and these people are often busy. To deal with the hierarchical structure, the respondent initiated repeating meetings with the lower layers in the structure. The respondent emphasises that there were no decisions made during these meetings, but that it was an time-consuming investment in the relation to build trust and give these people the opportunity to ask questions and share their opinion.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. The actor is included in the impact cluster and the respondent has experience in collaborating with Moroccan actors, mainly with Moroccan technology firms and a knowledge institute. This indicates the existence of stakeholder ties between the Dutch technology supplier and Moroccan actors.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, according to the respondent, the Islam prohibits to borrow money influencing the ability of growers to invest in technology negatively. However, this statement is more nuanced than the respondent describes. In Islamic finance Muslims are allowed to lend money (Al Rayan Bank, n.d.). However, it is prohibited to have interest (or Riba) on borrowed money. Second, the respondent experiences differences in punctuality between Moroccan and Dutch actors. This

difference might lead to antagonistic labour relations, negatively influencing the innovation cluster. Third, Moroccan growers are focused on short-term results. This is supported by the Moroccan cultural tendency for short-term orientation. The reactive behaviour has a negative influence on the innovation cluster as innovation requires monitoring and a future-orientation. Fourth, the respondent expressed that Moroccan growers show competitive and individualistic behaviour. This masculinity is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and stakeholders are less willing to cooperate. Fifth, Moroccan organisations have a hierarchical structure with top-down management. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Moreover, it creates a high workload of the top-management resulting in project delays in the innovation cluster as the decision makers are too busy.

4.2.15 Dutch technology supplier C

The respondent works at a Dutch technology supplier which is involved in the impact cluster. The respondent has little experience in collaborating with Moroccan actors. The actor itself has relations with growers, distributors and a branch organisation. The actor's motive for starting business in Morocco, is to enable efficient use of water, stimulate sustainable production and expand their sales. For the latter, the actor is planning to research the market potential in Morocco and test the adaptability of their products to the local context.

According to the respondent the mission of the impact cluster is to create sectoral change via the collaboration of the triple helix: business, government and education/research. The respondent states that the research pillar is responsible for the academic foundation, the business pillar enables fast development and the government pillar is necessary for financial support of the sector. The respondent experiences that the costs are a major barrier to growers. Therefore, the actor tries to present the relative advantage of their technology, strategies to spread the investment over a couple of years and the eventual return on investment. The respondent experiences that it is relatively easy to explain complex matters as Morocco has a large number of higher educated citizens. However, the respondent declares that currently the actor is not able to reach new growers. He states that they aim to reach a new potential customer group by taking part in the impact cluster.

The respondent states that understanding the local context and culture is necessary when doing business in a foreign country. Therefore, the actor aims to build a business unit with local citizens if the actor's market potential in Morocco grows. For example, the respondent experiences the language difference as a barrier to communicate. To minimize the barrier, the actor positioned a French speaking sales person. Moreover, the respondent explains that Dutch people use direct communication, i.e. "[…] you just say what you think.", and behave like they know everything. He expresses that this behaviour can be experienced as pushing.

Moreover, the respondent emphasises that mutual respect is a key value to build a business relation. The respondent experienced that in Morocco it is common to drink tea and have dinner with your working relations, while in the Netherlands he experiences that people try to avoid these things. Furthermore, the respondent explains that Dutch people are strict in time and the appointments they make. He experienced that Moroccan people are less strict in time and being present at the scheduled appointments. The respondent explains that bottom-up decision-making is stimulated at the Dutch actor. The respondent recognises that Moroccan organisations have a hierarchical structure with top-down decision-making. To collaborate, he emphasises that you should know who is allowed to make decisions. According to the respondent, the actor has a long-term orientation with mid-term

strategies. He emphasises that the sales unit is more short-term focused. The respondent explains that the actor collaborates with other actors and competition in the market as this strengthens it's position in the market.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. The actor is included in the impact cluster and the respondent has little experience in collaborating with Moroccan actors, mainly with growers, distributors and branch organisations. This indicates the existence of stakeholder ties between the Dutch technology supplier and Moroccan actors. However, the respondent states that at the moment the actor is unable to reach more growers.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, differences in punctuality are experienced between Moroccan and Dutch actors. This difference might lead to antagonistic labour relations, negatively influencing the innovation cluster. Second, Moroccan actors have a hierarchical structure with top-down decision-making. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Dutch actors stimulate bottom-up decision-making. This result is supported by the Dutch cultural tendency for low power distance. The consultative institutional tendency has a positive influence on an innovation cluster as multiple opinions are included in the decision-making and idea generation is supported. Third, language differences are experienced between Moroccan and Dutch actors. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve. Fourth, the Dutch actor collaborates with other actors including the competition is common. This is supported by the Dutch cultural tendency for femininity. The femininity has a positive influence on the innovation cluster as information is shared interactively and multiple stakeholders are included.

4.2.16 Dutch knowledge institute

The respondent works at a Dutch knowledge institute which is involved in the impact cluster. The respondent has experience in collaborating with various Moroccan actors both within and outside the impact cluster.

According to the respondent the mission of the impact cluster is to create sectoral change through knowledge transfer, training and demonstration. Moreover, the respondent emphasises that being active in Morocco can act as a gateway to start in other African countries. The respondent states that funding scarcity is a major barrier for Moroccan actors to adopt technologies and conduct research. Among Moroccan knowledge institutes, the respondent recognizes a traditional teaching approach of mostly frontal education. He explains that Dutch knowledge institutes are more open to implement new teaching approaches like challenge-based education.

The respondent experiences multiple barriers to collaborate with Moroccan actors. The respondent states that Moroccans not always speak English fluently or et al. This hinders the communication between the actors. The respondent states that Morocco has the ambition enhance the level of English speaking in the country. He emphasises that this is beneficial for the cooperation and moreover, it broadens the view of Moroccan citizens. Second, the respondent recognises a hierarchical structure in Moroccan actors with top-down decision-making. The respondent explains that the top-management needs to do a lot of tasks, resulting in project delays. Third, the respondent experiences competition between the organisations, i.e. not all actors are open to collaborate. The actor aims to

implement a more collective view. Fourth, the respondent explains that Moroccan actors are less punctual in arranging tasks on time then Dutch stakeholders. The respondent emphasises that mutual trust is an important value to overcome these cultural differences and enable sectoral development.

According to the respondent, most Moroccan and Dutch actors involved in the impact cluster have a general long-term vision. The respondent recognises a more short-term orientation among the sales teams of the technology suppliers. Moreover, the respondent explains that Moroccan actors mainly focus on ad-hoc projects.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. The actor is included in the impact cluster and the respondent has experience in collaborating with various Moroccan actors both within and outside the impact cluster. This indicates the existence of stakeholder ties between the Dutch knowledge institute and Moroccan actors.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, Language differences are experienced between Moroccan and Dutch actors. Most Moroccan people speak French and only a few people speak English. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve. Second, Moroccan actors have a hierarchical structure with top-down decision-making. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Moreover, it creates a high workload of the top-management resulting in project delays in the innovation cluster as the decision makers are too busy. Third, the respondent experiences competitive behaviour among Moroccan actors. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded. Fourth, Differences in punctuality are experienced between Moroccan and Dutch actors. This difference might lead to antagonistic labour relations, negatively influencing the innovation cluster. Fifth, Moroccan actors are mainly focused on ad-hoc projects. This is supported by the Moroccan cultural tendency for short-term orientation. The reactive behaviour has a negative influence on the innovation cluster as innovation requires monitoring and a future-orientation. Moroccan actors leading the sectoral change and Dutch actors are mainly long-term oriented. For the Dutch actors, this is supported by the Dutch cultural tendency for long-term orientation. The long-term orientation influences the innovation positively as monitoring and future-orientation are supported.

4.2.17 Dutch consulting firm A

The respondent works at a Dutch consulting firm which is responsible for the governance of the impact cluster in Agadir. Within this context, the respondent has experience in collaborating with Dutch and Moroccan actors. The actor's motive for starting business in the Sous-Massa region is to increase the Dutch market potential. The respondent indicates that the Dutch horticultural production will decrease and visions horticultural knowledge as a new product to sell across the globe. Moreover, the actor has the social motive to enable the Moroccan horticulture sector to increase the yield and become more sustainable by offering training and demonstrating technology.

The respondent experiences that the Moroccan stakeholders within the impact cluster are open for sectoral change. These stakeholders include higher educated or highly experienced individuals within the sector. According to the respondent, the Moroccan actors leading in the sectoral change are

generally having an mid-term orientation of five till eight years. The interviewee expects that this orientation is shorter from high-tech to no-tech growers as no-tech growers are focused on surviving rather then doing investments. According to the respondent, the Dutch organisations act on a long-term orientation of at least ten years. The respondent emphasises that the actors start investing in Morocco realising that years of training and sectoral change are necessary to create a market for them. Depending on the job position, some Dutch individuals act in a commercial more short-term orientated manner, neglecting the large-scale sectoral change.

The respondent experiences that Moroccan growers are generally not open to collaborate and share knowledge with competing growers. The respondent declares that knowledge sharing and collaboration are common activities among Dutch horticultural actors. The interviewee indicates trust among stakeholders as a key value enabling knowledge transfer.

A top-down hierarchical organisational structure is recognized by the respondent among the Moroccan stakeholders. Individuals with a higher rank and/or of a higher age have more leverage in the decision-making. The interviewee indicates that as a result the top management has a busy agenda slowing-down the process of collaboration. The respondent experiences this as a potential barrier as the top management plays a key role in the sectoral transition. In Dutch organisations, the respondent recognizes a bottom-up flat organisational structure. Employees have freedom in making decisions within their company to a certain extend. Moreover the respondent declares that consensus building is highly valued in decision-making and age does not play a vital role. In larger Dutch organisations there are routines to guide this bottom-up system.

The interviewee experiences language as a barrier in the communication between Dutch and Moroccan stakeholders. Not all Moroccan stakeholders are experienced in speaking English and the Dutch respondent does not speak French. The respondent tries to overcome the language barrier by speaking English slowly and inviting a interpreter when possible. Amongst the Moroccan institutions a shift has started to convert form French to English as a second language.

The respondent experiences that Moroccan stakeholders are less strict on time schedules then Dutch actors. Dutch actors are more speed driven and the interviewee declared that it takes time to get used to this cultural difference.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is responsible for the governance in the impact cluster and the respondent has experience in collaborating with Moroccan actors, indicating the existence of stakeholder ties between the Dutch consulting firm and Moroccan actors. Second, the respondent experiences that knowledge sharing within the cooperative is common while information is not shared outside the cooperative. This indicates strong ties within the cooperative and weaker ties among growers outside the cooperative.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, Moroccan actors leading the sectoral change are mid-term oriented and Dutch actors are mainly long-term oriented. For the Dutch actors, this is supported by the Dutch cultural tendency for long-term orientation. Hofstede's database show a Moroccan cultural tendency for short-term orientation The mid- and long-term orientation influences the innovation positively as monitoring and future-orientation are supported. Second, there is a lack of knowledge sharing and collaboration among competing growers. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as

less information is shared and other stakeholders are excluded. In the Netherlands, knowledge sharing and collaboration is common among growers. This is supported by the Dutch cultural tendency for femininity. The femininity has a positive influence on the innovation cluster as information is shared interactively and multiple stakeholders are included. Third, Moroccan actors have a hierarchical structure with top-down decision-making. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Moreover, it creates a high workload of the top-management resulting in project delays in the innovation cluster as the decision makers are too busy. Third, the respondent experiences competitive behaviour among Moroccan actors. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded. Fourth, language differences are experienced between Moroccan and Dutch actors. Most Moroccan people speak French and only a few people speak English. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve

4.2.18 Dutch consulting firm B

The respondent works at a Dutch consulting firm which is responsible for the governance of the impact cluster in Agadir. Within this context, the respondent has experience in collaborating with Dutch and Moroccan actors.

The respondent experiences that the Moroccan stakeholders within the impact cluster are open to sectoral change and some actors are even very ambitious. According to the respondent, the aim of the impact cluster is to transfer knowledge from the Netherlands to Moroccan horticulture by demonstrating technologies and provide training to growers. The respondent explains that these activities should lead to the increase of yield per square meter, use resources like water more efficiently, stimulating biological control and to convince growers to invest in new technologies enabling these changes. The respondent declares that this knowledge transfer can create a market for Dutch organisations to sell technologies and enable Moroccan growers to produce according to the Dutch standards. The respondent emphasises that such a common goal, with slight individual interests, is necessary for a strong collaboration.

The respondent explains that tight cultural beliefs, trust and a long relationship makes it easier to collaborate. The respondent experiences that Moroccan and Dutch actors involved in the impact cluster are currently exploring how a collaboration would look like. The respondent points out that mutual respect is an important value in this stage. To minimize the language and cultural differences most the respondent declares that Dutch actors deploy Moroccan-Dutch employees in the teams that operate in Morocco. Within this exploring phase, the respondent experiences that Dutch actors use direct communication: "[…] in the Netherlands, we notice that if someone disagrees, then you simply say I disagree.". The respondent explains that until now, the actor did not notice any disagreement from the Moroccan stakeholders. He expresses that he is uncertain, whether there are no disagreements or that the Moroccan stakeholders use more distinct communication. Moreover, the respondent declares that Dutch actors have the tendency to keep close control on the set program.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. The actor is responsible for the governance in the impact cluster and the respondent has experience in collaborating with Moroccan actors, indicating the existence of stakeholder ties between the Dutch consulting firm and Moroccan actors. The respondent emphasises that currently

Moroccan and Dutch stakeholders are exploring how a collaboration would look like. This suggests that at the moment the stakeholder ties are new and there is a demand to improve the relations.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. The respondent indicate that Moroccan-Dutch people are employed by Dutch firms to bridge the language differences. Most Moroccan people speak French and only a few people speak English. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve.

4.2.19 Dutch consulting firm C

The respondent works at a Dutch consulting firm which is responsible for the governance of the impact cluster in Agadir. Within this context, the respondent has experience in collaborating with Dutch and Moroccan actors.

According to the respondent the mission of the impact cluster is to create sectoral change via knowledge transfer, training and technology demonstration. Moreover, the impact cluster is aimed to create partnerships between Moroccan and Dutch organisations to stimulate the market potential of both countries. The respondent explains that the Moroccan sector faces difficulties with amongst others water scarcity and sustainable food production. The interviewee experience traditional behaviour amongst growers. Although problems like water scarcity heavily impact the sector, growers do not adopt technologies to minimise these problems. Moreover, the respondent states that Moroccan knowledge institutes face difficulties in connecting with the local horticultural sector. The respondent declares that a branch organisation functions as the link between both parties translating the academic results to practical knowledge for the growers.

The respondent emphasises that understanding the local context and culture enhances the collaboration. The respondent recognises that most Dutch organisations position Moroccan-Dutch individuals to do business in Morocco. The interview claims that these bi-cultural people should be able to bridge the Moroccan and Dutch culture.

The respondent experiences the language difference as a major challenge in the collaboration between Dutch and Moroccan organisations. The interviewee explains that most Dutch people do not speak French, while this is a first language in Morocco and Moroccan people often do not speak English. Validating each others opinion is a key strategy to overcome the language barrier according to the respondent.

The respondent states that Dutch organisations are used to collaborate and work collectively in working groups with competing organisations. This enables knowledge transfer and sectoral development. The respondent recognises an individualistic competitive working culture among Moroccan organisations. The respondent declares that changing the mentality from individualism to collectivism is a major challenge to create sectoral change. Building trust is necessary to stimulate knowledge sharing.

According to the respondent, Dutch organisations show both a long- and short-term orientation. Some organisations mainly focus on their sales in Morocco and adapt a short-term strategy, while other organisations are focused on building strong relationships to capture value on a long-term. The respondent explains that this variety is caused by differences in market orientation.

The respondent declares that Dutch organisations have a flat structure stimulating bottom-up decision-making. The respondent recognises a hierarchical structure with top-down decision-making

in Moroccan organisations. The interviewee experiences that the top-management layer is very busy and as lower layers are not allowed to make decisions, project delays emerge.

Interview analysis

When analysing the data, the following communication patterns are seen in Sous-Massa's innovation cluster. First, the actor is responsible for the governance in the impact cluster and the respondent has experience in collaborating with Moroccan actors, indicating the existence of stakeholder ties between the Dutch consulting firm and Moroccan actors. Second, the respondent states that Moroccan knowledge institutes face difficulties in connecting with the local horticultural sector, indicating weak ties. Branch organisations are bridging these weak ties by translating the academic knowledge to local growers.

Moreover, elements of national culture potentially influencing the innovation cluster are recognised when analysing the data. First, Language differences are experienced between Moroccan and Dutch actors. Most Moroccan people speak French and only a few people speak English. The language difference influences the innovation cluster negatively as clear communication is difficult to achieve. Second, the respondent experience individualistic and competitive behaviour among Moroccan actors. This masculinity is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded. In the Netherlands, knowledge sharing and collaboration is common among competing growers. This is supported by the Dutch cultural tendency for femininity. The femininity has a positive influence on the innovation cluster as information is shared interactively and multiple stakeholders are included. Third, Dutch actors are mainly long-term oriented. This is supported by the Dutch cultural tendency for long-term orientation. The long-term orientation influences the innovation positively as monitoring and future-orientation are supported. The Dutch sales teams are more short-term focused, effecting the innovation cluster negatively as adaptation to the local context requires a longer-term approach and might be neglected. Fourth, Moroccan actors have a hierarchical structure with top-down decision-making. This result is supported by the Moroccan cultural tendency for high power distance. The authoritative institutional tendency has a negative influence on an innovation cluster as only a few informative opinions are included in the decision-making and individuals are often not able to make decisions on innovation. Moreover, it creates a high workload of the top-management resulting in project delays in the innovation cluster as the decision makers are too busy. Third, the respondent experiences competitive behaviour among Moroccan actors. This masculine behaviour is not strongly recognised in the Moroccan cultural dimensions. The masculinity has a negative influence on the cluster's success as less information is shared and other stakeholders are excluded.

4.3 Observations

During the field trip in Morocco, observations are done while conducting group and in-person interviews. The observations are listed below.

First, some Moroccan respondents do not speak English or are not feeling comfortable in conversating in English. These conversations were completely or partly translated by asking an interpreter or using a translating app. When translating, there is a risk of losing or falsely interpreting information. This observation can be seen in the following example: four respondents who did not feal comfortable in conversating in English, repeatedly revised the translated conversation.

Second, compared to Moroccan respondents, Dutch respondents use more direct communication during conversations and discussions and are more strict on time management. Dutch respondents

are trying to find a balance between showing respect and meeting the stated agreements and time schedule. This observation can be seen in the following example: Dutch and Moroccan individuals have a working meeting. The Dutch stakeholder need to go to the next meeting. The stakeholder closes the discussion and thanks the Moroccan partner several times. The Moroccan partner remains continuing the presentation and demands to show pictures before the Dutch people are leaving. There are some technical issues which take time to solve. Meanwhile, the Dutch respondents are getting impatient as they want to be on time at their next meeting. The Moroccan respondent uses a louder voice and shows signs of angriness. The Dutch respondents say in Dutch that they have the feeling to be disrespectful if they leave the meeting. They repeatedly express the necessity of moving to the next meeting in English, French and Arabic. Nevertheless, the meeting continues until the pictures are shown. Another example: there was an interview of one hour scheduled with an Moroccan stakeholder. Without notifying the researcher of being later, the respondent enters the meeting after twenty minutes late. After ten minutes, the respondent states that he has at maximum five minutes left.

Third, within Moroccan knowledge institute A, the individual respondents are not aware of each others' and the organisations' activities. The individuals outside the top-management team are not familiar with the activities of the institute which are defined by the top-management team. A top-down management approach can be recognised in which the activities are not fully communicated to the lower levels in the organisation. This observation can be seen by the following example: there is a meeting with a Dutch actor and individuals outside the top-management team. The Dutch respondent, who is in contact with the institute's top-management team, explains activities which will start at the institute in the coming months. The teachers emphasise that this is new information to them.

4.4 Cross-interview analysis

In this section, the within-interview results are compared in a cross-interview analysis. Appendix B shows an extensive cross-interview table in which the main results per individual interview are presented.

4.4.1 Horticultural innovation cluster in Sous-Massa

When comparing the results of the individual interviews, a description of the horticultural innovation cluster in the Sous-Massa region can be defined. Due to privacy reasons, the related respondent codes are not mentioned in this section. The results are complemented with archival research when necessary. Figure 6 shows a schematic overview of the stakeholder ties in the Sous-Massa region. The figure only contains the organisations and stakeholder ties mentioned during the interviews. Therefore, it should be kept in mind that some existing actors (e.g. distributors) and stakeholder ties are not present in the figure.

The figure shows that the cluster contains a variety of actors like individual growers, grower cooperatives, a grower branch organisation, incubator, research institute, university and governmental organisations. The branch organisation Apefel and university IAV Hassan II are important stakeholders in the cluster as almost every actor is related to these parties.

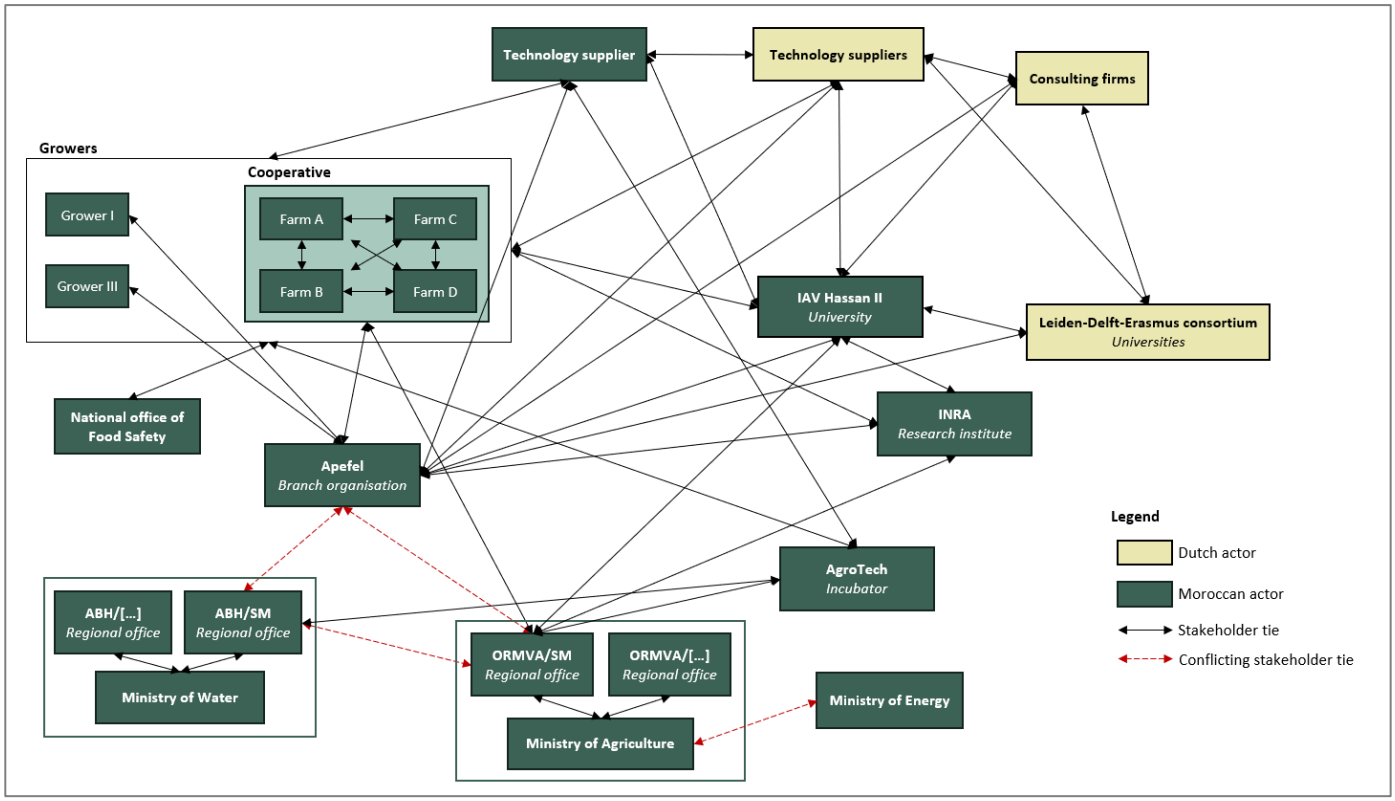

Figure 6: horticultural innovation cluster Sous-Massa

As a branch organisation Apefel represents the local growers and therefore is as a central point in the innovation cluster. The organisation acts as a translator, meaning that the organisation aims to translate academic research and governmental information to the local growers. Additionally, the organisation represents the (mainly smaller) growers in discussions with governmental bodies. Large cooperatives are often directly included in these discussions. Additionally, Apefel conducts independent research on horticultural technologies and demonstrates these technologies. With these activities, the branch organisation stimulates stakeholder ties between technology suppliers and local growers.

The university IAV Hassan II the cluster with young professionals. Growers are connected by offering internships to the students. Among the governmental institutes, the university represents young professionals and is involved in defining strategies to equip young professionals with the resources they need to stimulate sectoral change. Additionally, the university conducts research jointly with technology suppliers and research institutes like INRA and Apefel. The respondents state that a collaboration with AgroTech is lacking. This is remarkable as the university is developing an incubator for horticultural innovation on campus, while the incubator AgroTech is already positioned in the cluster. The respondent declares that the university is aiming to collaborate with AgroTech in the future.

The figure shows conflicting stakeholder ties between Apefel, the Water Basin Agency (ABH/SM) and the Regional Office of the Ministry of Agriculture (ORMVA/SM). Moreover conflicting ties are present between the Ministry of Agriculture and the Ministry of Energy. These conflicting ties indicate that the respondents mentioned misalignment between the actors. It is remarkable that the conflicting connections are only described among governmental bodies and between governmental institutes and Apefel. The lack of communication between the Ministry of Energy and Ministry of agriculture is stated by one respondent. The misalignment between Apefel, ABH/SM and ORMVA/SM is indicated by two respondents.

Branch organisations, knowledge institutes and governmental agencies use various methods to reach growers, e.g. presentations, training, demonstrations, social media and news papers. Nonetheless, research institutes experience difficulties in translating the academic knowledge to farmers, e.g. because of analphabetic growers. Therefore, they connect with actors like Apefel to bridge the gap. Moreover, young professionals transfer foreign knowledge on sophisticated horticulture to Moroccan growers.

During the interview, two types of growers are described: individual growers and cooperatives. The respondents explain that cooperatives are generally large grower companies owning dozens of farms. Each cooperative employs multiple farm managers which each manage 2-10 farms. For example, Azura is a family-owned group of companies, owning 55 tomato and herb farms covering nearly 1000 ha (Azura, n.d., 2019). Another example is Qualiprim, owning 25 blueberry, raspberry, strawberry and tomato farms covering more then 450 ha (Qualiprim, n.d.). Most respondents declare that the ties between farms within the cooperative are generally strong, while communication between farms outside the cooperative is lacking. However, another group interview shows that farm managers from different cooperatives share knowledge with each other while having classes at the university, indicating little communication between cooperatives. Moreover, growers can be linked trough the aggregation program in which farmers are connected to private actors or larger grower organisations. However, only 40% of the targeted growers are reached by this policy instrument.

When looking to the stakeholder ties between the Moroccan and Dutch actors, it can be noticed that both Apefel and IAV Hassan II are the only Moroccan actors with ties to all Dutch actors. These Moroccan institutes have a leading role in the Greenport Agadir program and therefore form a gateway for Dutch stakeholders to other Moroccan actors in cluster. At the moment, relations with other important actors like AgroTech and governmental bodies are missing, limiting the potential of the Greenport. Most technology suppliers already have operations in Morocco. Some grower associations indicate that Dutch technology suppliers are mainly focused on profit, indicating weak stakeholder ties. Other respondents declare that offering a service, providing training and other time-consuming processes enhance the relation between the stakeholders.

4.4.2 Influence national culture on the innovation cluster

To compare the results of the actors, table 5 provides a summary of the main results on the influence of national culture discussed in section 4.2 Within-interview analysis. Per actor, the indicated national cultural dimensions influencing the innovation cluster are summarised. For every cultural dimension the nature of the dimension is described for Morocco and the Netherlands separately. The colours indicate whether the influence on the innovation cluster is negative, both negative and positive or positive. The blank boxes indicate that no direct result was found on the influence of national culture on the innovation cluster.

Table 5: Results influence national culture on the performance of the horticultural innovation cluster in the Sous-Massa region

Respondent details		Influence of national culture on the performance of the horticultural innovation cluster in the Sous-Massa region									
Actor	**Part of Greenport Agadir**	**Collectivism vs individualism**		**Masculinity vs femininity**		**Short-term orientation vs long-term orientation**		**Power distance (PD)**		**Language**	**Punctuality**
		Morocco	The Netherlands	Morocco	The Netherlands	Morocco	The Netherlands	Morocco	The Netherlands		
MGA- A	No	Collectivism: knowledge sharing within cooperative		Masculinity: no knowledge sharing outside cooperative							
MGA- B	Yes	Individualism: lack of shared vision among stakeholders		Femininity & masculinity: knowledge sharing for own benefits		Short-term					
MGA -C	No	Collectivism: knowledge sharing within cooperative		Masculinity: no knowledge sharing outside cooperative				PD high			
MGA -D	No					Short-term: among farm managers					
MTS	No										
MKI-A	Yes							PD high		Language difference	Punctuality difference
MKI-B	No	Individualism: lack of shared vision among stakeholders									Punctuality difference
MKI-C	No										
MGI-A	No										
MGI-B	No	Individualism: lack of shared vision among stakeholders									
MGI-C	No										
DGA	Yes			Masculinity: little knowledge sharing	Femininity: knowledge sharing	Short-term	Long-term	PD high	PD low: in organisations		
DTS-A	Yes					Short-term	Long-term	PD high	PD low: in organisations		
DTS-B	Yes			Masculinity: competitive behaviour		Short-term		PD high			Punctuality difference
DTS-C	Yes				Femininity: collaboration with competition			PD high	PD low: in organisations	Language difference	Punctuality difference
DKI	Yes			Masculinity: competitive behaviour		Mostly short- and some long-term	Mostly long-, and sales short-term	PD high		Language difference	Punctuality difference
DCF-A	Yes			Masculinity: no knowledge sharing with competition	Femininity: knowledge sharing	Mostly short- and some long-term	Mostly long-, and sales short-term	PD high	PD low: in organisations	Language difference	
DCF-B	Yes									Language difference	
DCF-C	Yes			Masculinity: competitive behaviour	Femininity: knowledge sharing		Mostly long-, and sales short-term	PD high	PD low: in organisations	Language difference	

***Negative influence**; positive and negative influence; positive influence*

When comparing the actors, the following similarities and differences can be recognized.

4.4.2.1 Masculinity vs Femininity

The table shows that respondents indicate masculine behaviour among Moroccan actors, influencing the innovation cluster negatively. Respondents DTS-B and DKI express that hey experience individualistic and competitive behaviour among Moroccan actors. DTS-B explained about Moroccan actors: "It is often, who is going to win? You or me? Winning together, they are not familiar with that.". Respondents MGA-A, MGA-C, DGA, DCF-A and DCF-C declare that competitive behaviour is mainly seen in the lack of collaboration and knowledge sharing with competing actors. The Moroccan respondents express that they do not share knowledge outside the growers cooperative, but that they would be open to do it. However, Dutch respondents indicate, that Moroccan actors are not willing to collaborate with the competition. Respondent DCF-B said: "[…] study groups, we want to introduce them in the impact cluster. But, if I tell this to a Moroccan grower, he thinks that I am crazy. 'I am not going to help my competitors.' If the competitor has a fungus, the grower is very convenient.". From the result, it can be concluded that at the moment, Moroccan actors show masculine behaviour. Hofstede's database presents that Moroccan culture embeds both masculinity and femininity. As the masculinity leads to the negative success factors individualistic learning, competitive culture, weak stakeholder ties and exclusivity to other stakeholders, it can be concluded that the national cultural dimension masculinity has a negative influence on an innovation cluster.

Additionally, the table shows that respondents indicate feminine behaviour among Dutch actors, influencing the innovation cluster positively. Respondents DGA, DTS-C, DCF-A and DCF-C express that knowledge sharing and collaboration with competing stakeholders is common among Dutch actors. Respondent DCF-C explains: "If I look at the Dutch agricultural sector, Dutch agricultural entrepreneurs are very used to working together. So we see a lot of the cooperative structure in the Netherlands. [...] In the Netherlands, this has led to us being very open about what entrepreneurs do. So entrepreneurs sit together in study groups, and that once started [...] as knowledge exchange, but now also to create the growth and development of knowledge.". Hofstede's database presents as well that Dutch organisation have a tendency to feminine behaviour. As femininity leads to the success factors interactive learning, cooperative culture, strong stakeholder ties and inclusivity to other stakeholders, it can be concluded that the national cultural dimension femininity has a positive influence on an innovation cluster.

4.4.2.2 Collectivism vs individualism

Although knowledge sharing among Moroccan actors is overall limited, the table shows that respondents MGA-A and MGA-C indicate collectivistic behaviour, influencing the innovation cluster positively. Both respondents declare that knowledge transfer between farms within the cooperative is common. Respondent MGA-A explains that another farm manager within the cooperative told him about planting little flowers at each row of the production plants to attract insects necessary for fruit production. The respondent copied this strategy in his own vegetable farm. This appearance of knowledge sharing within the cooperative is contradicting to the lack of knowledge sharing as a result of masculine behaviour. The national cultural dimension collectivism can explain this contradicting behaviour. Hofstede's database showed that Morocco as a strong tendency towards collectivism. Within a cooperative, the farms and farm managers are connected to each other. This could create a social-centric feeling, stimulating cooperative behaviour like knowledge sharing. As collectivism leads to the success factors interactive learning, cooperative culture, strong stakeholder ties and inclusion of stakeholders, it can be concluded that the national cultural dimension collectivism has a positive influence on the innovation cluster.

On the other hand, respondents MGA-B, MKI-B and MGI-B experience individualistic behaviour among Moroccan actors having a negative influence on the innovation cluster. These respondents declare that a shared vision among Moroccan stakeholders is difficult to achieve or even absent. Respondent MHI-B said: “Everyone defends its own needs. The water basin agency defends the sustainable water use and the ministry of agriculture defends the agricultural needs.”. This indicates ego-centric behaviour in which the actors are mainly focused on themselves. Respondent MKI-B experiences a lack of collaboration between the ministry of agriculture and the ministry of energy while an inegrated system of water, energy and food is necessary for a sustainable sector. Respondent MGA-B expresses that the branchorganisation and government have different points of view on the sector and how the sector should be stimulated. However, respondent MGI-A expresses all stakeholders have a shared vision and that there is no conflict of interest. Although the latter comment, the results show that there is some tendency to individualistic behaviour. This behaviour is not supported by Hofstede’s database as it indicates a strong tendency towards collectivism. Nevertheless, the individualistic behaviour leads to the negative success factor weak stakeholder ties and might lead to antagonistic relations. It can thus be concluded that tndividualism has a negative influence on the innovation cluster.

4.4.2.3 Short-term vs long-term orientation

The table shows that respondents indicate that Moroccan actors are mainly short-term oriented, influencing the innovation cluster negatively. Respondent DGA declares: “If we look at Moroccan companies, those are much more short term oriented in my opinion. Because they also have really acute problems [...] the water problem is really a daily topic there […] so that's much more short term at the moment.”. Respondent MGA-B states that their demonstration and training activities are focused on direct needs of growers rather than long-term projects. Moreover, respondents MKI-A, MKI-B, MGA-A and MGA-B were not able to explain any indication of strategy in reaching their described long-term vision. Respondent I of MKI-A refers to his superior for details on this topic. Respondents MKI-B, MGA-A and MGA-B express that such plans are absent. This indicates that a well-developed long-term strategy is missing. Having a comprehensive long-term strategy including short- and mid-term goals is crucial to keep track of the defined future vision.

Respondent DTS-A states that the short-term orientation is stimulated by the short depreciation period of technologies. He explains that the Moroccan greenhouses have a depreciation period of circa five years and within this period growers try to be as much resulted driven as possible. According to respondents DTS-A, DTS-B, this results in a short-term orientation. Respondent DTS-A states that young growers are more willing to invest in technologies with a longer depreciation period, resulting in a longer-term orientation. Respondent DTS-B says: “But in the Arabic world is it so, someone who invests he wants returns tomorrow.”. Moreover, the respondent states that Moroccan growers don’t have large amounts of financial capital and the Islam prohibits interest on borrowed money. As a result, the respondent declares that growers have not learned to invest money in technologies with a longer depreciation period.

The short-term orientation of Moroccan organisations is supported by Hofstede’s database. As short-term oriented societies are less likely to innovate and organisations show reactive instead of monitoring behaviour, it can be concluded that short-term strategies have a negative influence on the innovation cluster. In terms of investment, the short-term orientation has a negative influence on the innovation cluster as technologies with a long depreciation period are generally not adopted by Moroccan actors. For the latter, it is unknown whether the short-term orientation effects the investment behaviour or vice versa.

Furthermore, respondents DKI and DCF-A express that the Moroccan stakeholders included in the impact cluster show a long-term orientation in the project. Respondent DKI explains that these Moroccan stakeholders have a long-term investment vision for the impact cluster. DCF-A says: "the parties we communicate with at the moment, certainly have that long-term vision. The deeper we go into practice, the shorter the vision will become, I expect. So at the top is the university, below that are the suppliers, below that is the high-tech grower, below that are the mid-tech, low-tech, no-tech.". This longer-term orientation has a positive influence on the innovation cluster as long-term goals are defined and activities to reach the goal e.g. knowledge sharing, demonstration and research are determined.

Additionally, the table shows that respondents indicate that Dutch actors are mainly long-term oriented, influencing the innovation cluster positively. Hofstede's database shows as well that Dutch organisations have a tendency to long-term orientation. Respondent DGA explains: "[...] that also has everything to do with the objectives that have been set in which our sector will play an important role, in the field of sustainability, in the field of food safety, in the field of efficient production, employment, and we are of course working on linking those goals to our your own strategy and for that you need a long-term strategy and of course the short term is also involved.". DTS-A states: "Dutch parties focus on a longer-term vision. So it accepts to give up something in the first two, maybe three years, that it doesn't pay off, but that in the long run the revenue will come to them.". As these organisations are more future-oriented, innovation and investing in technologies with a long depreciation period are stimulated. Long-term orientation has thus a positive influence on the innovation cluster. Respondents DKI, DCF-A and DCF-C express that the sales teams of Dutch technology suppliers are often short-term focused. DCF-A explains that these sales teams have a commercial motive. This short-term orientation might lead reactive behaviour, negatively influencing the innovation cluster.

4.4.2.4 Power distance

The table shows that respondents recognise high power distance in Moroccan organisations, influencing the innovation cluster negatively. The respondents experience a hierarchical organisational structure with top-down decision-making in Moroccan organisations. Respondent DTS-B explains about the communication with Moroccan organisations: "That's very difficult, because there is only one person who is allowed to talk.". The respondent explains that when the top-management "is absent in a meeting, the other employees get the opportunity to talk and ask questions.". Respondent MKI-A-II emphasises that respect for hierarchy is very important in Morocco. He explains that all employees have respect for the management layers above their own position. The students of MKI-A indicate that often the top-management get involved in the decision-making of operations top-down in the business on which the top-management does not have the right knowledge to make a formative decision. Respondent MGA-D explained the following organigram of a cooperative: layers of top-management -> director of production -> farm managers -> managers of individual farms -> farm employees. He declares that the dop-management decides on the implementation of new technologies and processes in the farms. Moreover, the third observation described in section 4.4 shows that as a result of the hierarchic structures, employees located lower level in the structure are often not aware of the decisions made at the top-management level. Respondent DKI explains about the top-management of an Moroccan organisation: "He is in charge of everything [*heeft de lijntjes in handen*]. So we have to wait and see if he wants to delegate something. If he delegates nothing, it will hinder de speed of performing activities." This influence of power distance on project delays is supported by respondents DTS-B, DCF-B, and DCF-C as well. Moreover, respondent DCF-A indicates that Moroccan people are more sensitive to the opinions of older people. Besides, respondent MGA-A states that in grower associations decisionmakers are often of high age and woman are underrepresented. Therefore Morocco's New Generation Plan is focused on giving

opportunities to young people in the agricultural industry. Hofstede's database supports this tendency of high power distance in Moroccan organisations. The authoritative institutional tendency has a negative influence on the innovation cluster as only a few informative opinions are included in the decision-making, employees are not aware of the decisions made at the top level and individuals are often not able to make decisions on innovation. Moreover, it creates a high workload of the top-management resulting in project delays in the innovation cluster as the decision makers are too busy.

Additionally, the table shows that respondents recognise low power distance in Dutch organisations, influencing the innovation cluster positively. The respondents DGA, DTS-A, DTS-C, DCF-A and DCF-C experience a (somewhat) flat organisational structure in which consensus building and bottom-up decision-making are stimulated. Respondent DTS-C says about the internal structure: "We underline entrepreneurship, so at our company not everything has to be carried from top to bottom. Of course it must be bore, but you understand that, but it is not the case that for every little thing we have to go to our manager, and he must go one step higher to get it done. So if you make the right decisions individually, then that will also be tolerated in next actions.". Respondent DTS-A says about the internal structure: "You do have the freedom to manoeuvre a bit in your area for which you are responsible for making those decisions, also for yourself.". Hofstede's database supports this tendency of low power distance in Dutch organisations. This consultative institutional tendency has a positive influence on the innovation cluster as many opinions are included in the decision-making and individuals are supported to make decisions on innovation. Moreover, the bottom-up approach allows freedom in sharing innovative ideas.

4.4.2.5 Language and punctuality differences

Besides the pre-defined national cultural dimensions, the cultural dimensions language and punctuality came up through inductive coding. As Moroccan and Dutch actors show large differences on these new dimensions, the dimensions have a negative influence on the innovation cluster. If there would be no differences on these aspects, there would not have been a negative influence.

The national cultural dimension language indicates the differences in language among Moroccan and Dutch actors. The respondents state that Moroccans speak an Arabic language and often French. They declare that some Moroccans speak English minimally and only a few citizens speak English well. Furthermore, the respondents explain that almost all Dutch people speak English well, but they often do not speak French. Respondent II of MKI-A state that mainly the older farmers do not speak English. The students of MKI-A declare speak English but emphasise that it is difficult for them to convert knowledge from French to English. Respondent DKI expresses that the language difference raises barriers in the communication between Moroccan and Dutch actors. Respondent DCF-C explains about the language difference: "So that's why you have to, that's just very careful, validate every time. What I'm saying now, has he understood correctly or have I understood correctly what he has told me, so to speak. So that makes it sometimes difficult and that means that you just have to act carefully.". However, according to respondent DKI, the Moroccan people have shared their future ambition to enhance the level of English. He emphasises that this would be beneficial for the collaboration and give Moroccans the opportunity to broaden their viewpoint as more information will become reachable. The language difference can be clearly recognised in the first observation described in section 4.4. The observation indicates that when asking an interpreter or using an translating app, there is a high risk of losing or falsely interpreting information. To conclude, the language differences can lead to indistinct communication, moreover distrust and antagonistic labour relations could emerge when the actors do not understand each other correctly. Additionally, the language difference raises barriers to exchange knowledge. Therefore, it can be concluded that language differences have a negative influence on the innovation cluster.

The national cultural dimension punctuality indicates the differences in punctuality among Moroccan and Dutch actors. The respondents declare that Dutch people are very strict with respect to time and agreements while Moroccan people are not strict with time. Respondent DCF-A says about Dutch people: “we're going to organize it now, then it has to be done tomorrow.”. Respondent DTS-B express about Moroccan actors: “You have to be very patient, because it is the same as in Spain, mañana, mañana. Things don't get picked up quickly, and things don't get settled quickly.”. The respondent explains that in Morocco, when you don’t succeed to finish a project in time, it does not matter and it is a problem for the client. While in the Netherlands you would need to notify the client in an early stage about the delay and often you need to fix the problem yourself. Respondent DTS-C emphasise that Dutch people highly value to honour commitments. As a result of the punctuality difference, respondent DCF-B declares that Dutch actors have the tendency to keep control of predefined programs. The cultural difference can be clearly recognised in the second observation described in section 4.4. In this case, the difference in punctuality resulted in impatience among Dutch people and signs of angriness among Moroccan people. The difference in punctuality can thus lead to antagonistic relations when Dutch and Moroccan people are not aware of this difference and do not mutually respect it. Therefore, it can be concluded that punctuality differences could have a negative influence on the innovation cluster.

4.4.3 Other results

When comparing the data of the respondents, other interesting results on the horticultural innovation cluster in Morocco came up.

First, the respondents indicate barriers and drivers to innovation adoption. Respondents MGA-A, MGA-D, MKI-A, MKI-B, MKI-C, DTS-B DTS-C, DKI state that the high costs of technology are the main barrier to technology adoption for growers. They explain that growers can often not afford the investment costs. Respondents MFA-A and MFA-D emphasise that they are willing to adopt new technologies if they would be able to afford it. Respondent MKI-C states that adaption of technology to the local context is needed to lower the costs. However, respondent MKI-B declares that the costs are not the issue, but that growers don’t want to change if their yield is already high enough to them. According to respondents MGA-B, MTS, MKI-A, MGI-A, DTS-B, DTS-C the barrier of high costs can be mitigated when the relative advantage of the innovation compared to the current stage is clear. To growers DTS-B declares that explaining the return-on-investments and showing the relative advantage related to higher yield and lower costs is pertinent to stimulate growers to adopt new technologies. MTS indicates that at the moment growers often think that the relative advantage of new technologies is not high enough to be a worthy investment. Respondents MGA-B, MTS, MKI-A, DTS-B express that demonstrating technologies enable growers to observe the relative advantage which can help convincing them. MGA-B emphasise that demonstrating technologies in a transparent environment enhances the reliability of research on and observability of new technologies, stimulating famers to adopt the technology.

Second, respondents indicate a difference in direct and indistinct communication between Dutch and Moroccan actors. Respondents MKI-A, DGA, DTS-A, DTS-B, DTS-C, DCF-B declare that Dutch people use direct communication while Moroccan people are less direct or even use indistinct communication. The students of MKI-A emphasise that Moroccan people are relaxed and enjoy making jokes and fun during work. About Dutch people the students say that some people make jokes, but they are generally serious and direct in their work. Respondent DTS-C says about Dutch communication: “Just say whatever you think.”. Respondent DGA says about the communication difference: “A Dutch person is very direct. A Moroccan is much more introverted. Therefore, you are spending a lot more time understanding the reasons why your Moroccan counterpart does the things

they do and that takes a lot of time.”. Respondent DTS-B states that the direct communication of Dutch people can be experienced as insulting among Moroccans. Respondent DTS-A express that Dutch people must be careful that they are not too direct which can be experienced as aggressive among Moroccans. Respondent DGA explains that private conversations, for example during diner, stimulate more open and clear communication from Moroccans. Respondent DCF-A expresses that the indistinct communication of Moroccan people could be cultural or originate from the competitive behaviour in which they are not open to share knowledge.

Third, the respondents indicates values influencing working relations between the Netherlands and Morocco positively. According to respondents MKI-B, DTS-A, DTS-B and DTS-C, mutual respect in general and for cultural differences in specific is indicated as a main value for collaboration. Respondents MKI-B, DTS-A, DTS-B, DTS-C, DTS-B, DTS-C and DCF-C indicate that understanding the local context and culture is important to start business relations. Respondents MGA-B, DKI and DCF-A declare that building trust is important as well to start the collaboration and stimulate knowledge sharing. Moreover respondent DTS-B indicates that showing patience and gratefulness to Moroccan actors is important to Dutch organisations.

5. Discussion

As stated in the results section, the national cultural dimensions collectivism, femininity, long-term orientation and low power distance stimulate the positive success factors of an innovation cluster, influencing an innovation cluster's performance positively. The national cultural dimensions individualism, masculinity, long-term orientation and high power distance stimulate the negative success factors of an innovation cluster, influencing an innovation cluster's performance negatively. Moreover, language and punctuality differences stimulate the negative success factors, influencing a bi-cultural innovation cluster's performance negatively.

On power distance and short-/long-term orientation this study's results are in line with the academic understanding of the dimensions' influence on a country's innovativeness. Previous literature shows contradicting results for the influence of individualism/collectivism and masculinity/femininity. However, this study demonstrates that collectivism and femininity have a positive influence while individualism and masculinity have a negative influence on the performance of an innovation cluster.

On individualism, researchers have shown that it encourages people to make their own decisions and achieve their personal goals, resulting in greater innovativeness (Jang et al., 2016; Kaasa, 2017; Khan & Cox, 2017; Tian, Deng, Zhang, Salmador, et al., 2018a). This study demonstrates that individualism hinders stakeholders to define a shared vision leading to weak stakeholder ties and potentially to antagonistic relations, resulting in a negative influence on the performance of an innovation cluster. Moreover, this study shows that collectivism on the other hand stimulates knowledge sharing influencing an innovation cluster's potential positively. However, Jones & Davis (2000) argue that the lack of freedom and autonomy in a collective society is destructive for innovation.

Some studies claim that a masculine culture is preferable as assertiveness and goal orientation positively influence the likelihood of idea generation (Jang et al., 2016; Tian, Deng, Zhang, Salmador, et al., 2018a). However, this study presents that masculine organisations show competitive behaviour, resulting in exclusion of stakeholders and a lack of knowledge sharing, influencing an innovation cluster negatively. Other literature argue for a feminine culture as cooperation and a caring environment decreases uncertainty and therefore increases innovativeness (Kaasa, 2017; Khan & Cox, 2017; Tian, Deng, Zhang, & Salmador, 2018). This study shows as well that feminine organisations show cooperative behaviour, leading to the inclusion of stakeholders and stimulate knowledge sharing, influencing an innovation cluster positively.

The differences between this study and previous research can be declared by differences in scope. The mentioned previous literature is focused on the influence of national culture on a country's innovativeness while this study is focused on the performance of an innovation cluster. While, knowledge sharing and collaboration are highly important values to an innovation cluster, researchers show different points of view on the success factors of innovativeness in general. Therefore, it can be concluded that the results of this study should be seen as an emphasise of additional knowledge, rather than a contradiction to existing literature.

Furthermore, this study presents two new dimensions of national culture: language and punctuality. While Hofstede's dimensions are more focused on a nation's individual culture, these new dimensions are focused on nations' cultural differences. The data showed that alongside the individual cultural dimensions, differences in national culture influence the performance of an bi-cultural innovation cluster. Differences in language and punctuality are the main identified differences between Moroccan and Dutch actors and therefore, these are presented as new dimensions. The dimension language can be explained as the extent to which actors are unable to understand the same language. High differences in language have a negative influence on the performance of a bi-cultural innovation

cluster. The dimension punctuality can be explained as the extent to which actors share the same tendency to strictness in time and agreements. High differences in punctuality have a negative influence on the performance of a bi-cultural innovation cluster. The importance of punctuality among Dutch actors could be clarified by religious influences. In the Netherlands, Calvinism has left a large influence on the nation's culture which can still be recognised (Leiden International Centre, n.d.). Calvinism is a faction within Protestantism which became dominant during the 16th century in the Netherlands. Due to the strong influence of Calvinism on the Dutch society, being on time and highly valuing punctuality became embedded within the Dutch culture (Engammare, 2013; Leiden International Centre, n.d.). No academic literature is found on the value of punctuality among Moroccan Muslims. Therefore, it can not be stated with certainty that the difference in punctuality is a result of religious differences.

As discussed earlier, researchers advocate that aligned social and cultural values are highly important to create a fertile learning environment and foster innovation (Cooke, Uranga, et al., 1997; Doloreux, 2002a). Nonetheless, there has been a lack of literature about innovation clusters in developing countries and the influence of national cultures on the performance of innovation clusters. This research is a step to filling the knowledge gap by presenting a framework of the influence of national culture on the performance of an innovation cluster and by conducting research on the innovation cluster in a developing country, in specific Morocco.

5.1 Managerial implications

The results on the influence of national culture on an innovation cluster, analysis of the cluster and other findings regarding the innovation cluster on horticulture in the Sous-Massa region leads to multiple managerial implications. First, general managerial implications are described. These suggestions are relevant to organisations involved in bi-cultural innovation clusters and professionals who aim to stimulate innovation within their cluster. Second, the implications for the Moroccan-Dutch Greenport Agadir in specific are discussed.

5.1.1 General implications

Professionals should be aware of the influence of national culture on an innovation cluster. Below the implications are listed.

First, organisations in countries with a masculine tendency could show competitive behaviour. This behaviour limits the willingness to share knowledge which is a key asset of an innovation cluster. Explaining the individual benefits when sharing knowledge with competing stakeholders might convince actors to exchanging knowledge. Moreover, countries with a collectivistic tendency could emphasise the social-centric feeling as this stimulates the willingness to share knowledge and collaborate.

Second, organisations in countries with a tendency to high power distance must pay attention to giving individuals the opportunity to make decisions on innovation and involving employees in lower levels of the organisational structure in the decision-making process. This will enable more well-informed decisions and stimulate employees to be innovative, influencing the innovation cluster positively.

Third, organisations in countries with a tendency to short-term orientation could show reactive behaviour. This behaviour influences an innovation cluster negatively. Future-orientation, monitoring and planning influences an innovation cluster positively. Therefore, short-term oriented organisations could focus on defining a roadmap for long term visions, enabling a short-term activities while being future-oriented. Moreover, organisations must stimulate monitoring practices to define strategic long-term goals.

Fourth, organisations in bi-cultural innovation clusters must be aware of potential differences in language and punctuality. Indistinct communication could emerge as a result of language differences. Validation of each others opinions is necessary to avoid antagonistic relations. Differences in punctuality could result as well in antagonistic relations. Moreover, differences in the other national cultural dimensions between countries could have a negative influence on the collaboration. To prevent antagonistic relations in bi-cultural innovation clusters, it is pertinent to show mutual respect to cultural differences and put effort in building trust among actors.

5.1.2 Implications Greenport Agadir

First, only a few Moroccan stakeholders are included in the Greenport Agadir. This project is aimed at developing the Moroccan greenhouse production by (a) enhancing knowledge transfer through training and coaching and (b) developing sustainable and climate resilient innovations. To develop the Moroccan horticultural sector and positively influence the performance of the innovation cluster, more stakeholders must be included. For example, the Moroccan ministry of agriculture has a large influence on the sector via subsidies and regulations. Including this stakeholder will enable better alignment of ministerial regulations and subsidies and the innovation cluster, stimulating innovation and technology adoption. Another example is the inclusion of the Moroccan organisation AgroTech which has experience with bottom-up R&D and stimulating growers to technology adoption. This stakeholder can play a key role in the innovation cluster by exchanging their experience in technology development and transfer in Morocco.

Second, multiple actors indicated the lack of a shared vision among Moroccan horticultural stakeholders. Due to high power distance in Morocco, not all employees are included in the internal decision-making process. Generally, the top-management of organisations have been invited in the discussion on vision development. As a result of the high power distance, informative viewpoints could have been neglected. Moreover, individualistic behaviour is shown as stakeholders mainly defend their own needs. The coordinating organisations of Greenport Agadir, must be aware of this lack in the Moroccan horticultural sector. During the project, it is recommended to give all employees the opportunity to share their opinion and stimulate open-table discussions to define a shared vision among stakeholders.

Third, the data shows that although the Moroccan government reserves money for subsidies to stimulate growers to technology adoption, the high investment costs are experienced as the main barrier to technology adoption. Therefore, adapting technologies to the local context, teaching growers how to invest money and explaining the return-on-investments of technologies are recommended. Moreover, Greenport Agadir should focus on showing the relative advantage of innovations to growers to convince them to adopt the technologies.

Lastly, the data presents that Moroccan young professionals show more willingness to technology adoption then older generations. Due to high power distance, young professionals don't get the opportunity to make decisions on innovation. The Moroccan government already tries to address this gap by the New Generation plan. Greenport Agadir must be aware of this phenomenon as well and focus on young professionals as a translator spokesman for innovation. Therefore, it is recommended to mobilize young professionals to fulfil this role in a culture with high power distance.

5.2 Limitations and future research

Although this study presents new knowledge on the influence of national culture on the performance of an innovation cluster, the study's limitations must be taken into account. First, in qualitative research the reliability can be questioned as transparency and therefore replicability are challenging to achieve (Bryman, 2016). To enhance the replicability, the method is described extensively.

Moreover, coding is used to analyse the data and is a transparent method that can alleviate the reliability problem. To prevent, that the content gets lost during coding, multiple phrases are coded rather than a few words. Secondly, language barriers between Moroccan stakeholders and the researcher have emerged. Translators and translating apps are used when necessary. Nonetheless the validity of the research decreases as during translation results might got lost or (partly) falsely interpreted. Third, it should be mentioned that generally qualitative research takes a long time. Due to time constraints, a limited number of actors could be interviewed. To minimize the impact of the small sample, the results of the interviews are supported with Hofstede's scores on the countries' cultural dimensions. Fourth, my personal bias might have influenced the interviews and analysis of data. This is highly relevant as the research is focused on the influence of culture and cultural differences between Moroccan and Dutch organisations while I have a Dutch nationality myself. Moreover, as a researcher it is important to be aware that culture and cultural differences can be a sensitive subject to talk about with respondents, especially with respondents from a different culture. Therefore, during the first interviews with Moroccan actors I addressed the topic with indirect questions avoiding words related to culture. However, this method was not suitable to collect sufficient data and adjusting the interview strategy was necessary. In the end, I introduced the subject of culture by providing an example that stays close to myself. Moreover, I emphasised that when talking about cultural differences, it is not about right or wrong. Unlike the first method, the respondents understood the topic and showed an open attitude to talk about culture, leading to valuable data.

Other limitations of the research lead to suggestions for future research. First, the reader should bear in mind that this research is focussed on a bi-cultural innovation cluster of Dutch and Moroccan actors in a Moroccan sector. Geo- and demographical comparable cases could show the same results. However, as national culture varies among countries the results are not directly representable for other bi-cultural working relations. Therefore, future research could focus on analysing the influence of national culture on an innovation cluster in other geo- and demographical countries. Second, to test the reliability of this study's result and analyse in-country differences, future research could be conducted on innovation clusters in other Moroccan sectors. Third, this study did not find results on the national cultural dimensions indulgence and uncertainty avoidance. Therefore, research on these dimensions in specific is recommended.

At last, it should be emphasised that this research is just a step to filling the knowledge gap of literature on innovation clusters in developing countries and the influence of national culture on innovation clusters. Future research on these topics in general is thus highly relevant to further address the existing knowledge gap.

6. Conclusion

In this study, the influence of national culture on the performance of an innovation cluster is demonstrated. Moreover, the implications for the Moroccan-Dutch Greenport Agadir are discussed. By presenting several interviews from my empirical research in Morocco and the Netherlands and linking these results to Hofstede's database, the conclusion can be drawn that national culture can have both a positive influence and negative influence on the performance of innovation clusters. Moreover, cultural differences can negatively influence the performance of a bi-cultural innovation cluster.

The national cultural dimensions influencing the performance of an innovation cluster negatively are masculinity, individualism, short-term orientation and high power distance. The national cultural dimensions influencing an innovation cluster positively are femininity, collectivism, long-term orientation and low power distance. Moreover, large differences in language and punctuality between countries influence the performance of a bi-cultural innovation cluster as well. The Moroccan-Dutch Greenport Agadir can use these results and the managerial implications as a guideline to improve the innovation cluster. For example, they should be aware of the influence of masculinity among Moroccan actors on the lack of knowledge sharing among competing organisations. The impact cluster could tackle this negative cultural influence by emphasising the individual benefits to Moroccan actors and make use of the cultural tendency to collectivism by creating a social-centric feeling.

Literature on the influence of national culture on an innovation cluster was lacking, and literature on innovation clusters in developing countries was scarce. This research addresses the existing knowledge gap. Previously, research has been conducted on the influence of national culture on a country's innovativeness. On the dimensions of power distance and short-/long-term orientation this study demonstrates complementing results on existing literature. On the dimensions individualism/collectivism and masculinity/femininity existing literature shows contradicting results. This study adds upon the data on the influence of these dimensions. Moreover, this study presents two new dimensions of national culture called language and punctuality differences. Future research on the influence of culture in other geo- and demographic areas could help to further address the knowledge gap and could lead to the development of tools guiding countries in the development of innovation clusters.

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Appendix

Appendix A: Semi-structured interview guidelines

Semi-structured interview guideline English

Opening

- Asking permission to record the interview for transcribing
- Start recording and ask permission again

Introduction to the context

- How would you introduce yourself?
- How would you describe your organisation?
- What is the function of the formation of a horticulture cluster in Agadir in your own words?
- What is your individual motif in joining this project?
- What is the role of your organisation within this cluster? What is your opinion on this role?

Creation of innovation clusters

Focus on all stakeholder groups/ organisations/government/educational institutions

- With which actors does your organisation already collaborate in Agadir?
    - What is the purpose of this collaboration?
    - How would you describe this relation? *Strong/loose* How often? Since when?
    - What are the barriers to collaborate with these actors?
- How do you share knowledge with these actors?
    - What knowledge is shared?
    - What are the obstacles to sharing knowledge with these actors?
    - Where do you share knowledge? Where do you meet? (restaurant, home etc)
- How well do you understand Moroccan stakeholders when collaborating with them?
- How well do you understand Dutch stakeholders when collaborating with them?
- Do Dutch stakeholders behave as you expect? Elaborate your answer
- What differences do you experience between Dutch and Moroccan stakeholders?

Masculinity, long term orientation, indulgence

- What is your view on long-term orientation vs short-term orientation (operational)?
    - Do you see difference on this view between Dutch and Moroccan stakeholders?
- What is your organisations motive to collaborate with other organisations/knowledge institutes? (masculinity) own goals vs cooperation
    - *Competition vs collaboration → differences Morocco and NL?*
- How do <u>you</u> express new ideas in your organisation? (indulgence & masculinity)
  Do you feel limited to share ideas? Do you feel limited to think outside the box? Where does this limitation come from? Are the shared ideas taken seriously within your organisation?
    - How do colleagues react on new ideas? Differences MAR/NL?
    - How are new innovations adopted? Differences MAR/NL?
- How are choices made within your organisation? (masculinity) *Hierarchy or consensus? Age?*
    - Do you see differences on making choices between Dutch and Moroccan stakeholders?
    - Is there space for a feminine approach? If so, what would take it in the current context? *i.e. person-oriented caring vs goal-oriented competitive*

Semi-structured interview guideline Dutch

Opening

- Introductie van de interviewer en onderzoek
- Toestemming vragen tot opnemen voor transcriberen

Introductie tot de context

- Hoe zou u uzelf introduceren?
- Hoe zou u de organisatie waarvoor je werkt omschrijven?
- Wat is de functie van het creëren van een tuinbouw cluster in Agadir in uw eigen woorden?
- Wat is uw individuele motief om deel te nemen aan dit project?
- Wat is de rol van uw organisatie binnen dit cluster? Wat is jouw mening over deze rol?

Ontwikkeling van innovatie clusters

Focus op alle stakeholders/organisaties/overheden/onderwijs instituten

- Met welke actoren werkt uw organisatie al samen in Agadir?
    - Wat is het doel van deze samenwerkingen?
    - Hoe zou je de relatie omschrijven? *Strong/loose relations.* Hoe vaak? Sinds wanneer?
    - Wat zijn de belemmeringen om met deze actoren samen te werken?
- Hoe deel je kennis met deze actoren?
    - Welke kennis wordt gedeeld?
    - Wat zijn de belemmeringen om kennis te delen met deze actoren?
    - Waar deel je kennis? In welke setting? *(verjaardagen, meetings in restaurants etc.)*
- Hoe goed begrijpt u Nederlandse stakeholders wanneer u met hen samenwerkt?
- Hoe goed begrijpt u Marokkaanse stakeholders wanneer u met hen samenwerkt?
- Gedragen stakeholders uit het andere land zich zoals u verwacht? Licht het antwoord toe
- Welke verschillen ervaart u tussen Nederlandse en Marokkaanse stakeholders in de manier van werken?

Masculinity, long term orientation, indulgence

- Wat is uw mening wat betreft langetermijnvisie versus kortetermijnvisie (operationeel)?
    - Zie je verschil in deze visie tussen Nederlandse en Marokkaanse stakeholders?
- Wat is de drijfveer van uw organisatie om samen te werken met andere organisaties/kennisinstellingen? *(masculinity) Eigen ontwikkeling vs. samenwerking*
    - *Competitie vs samenwerking → verschillen Marokko en NL?*
- Hoe verwoordt u nieuwe ideeën in uw organisatie? *(Indulgence/masculinity)*
  Voel je je beperkt om ideeën te delen? Voel je je beperkt om out-of-the-box te denken? Waar komt deze beperking vandaan? Worden de gedeelde ideeën serieus genomen binnen uw organisatie?
    - Hoe reageren collega's op nieuwe ideeën? Verschillen NL/MAR?
    - Hoe worden nieuwe innovaties geadopteerd? Verschillen NL/MAR?
- Hoe worden keuzes gemaakt binnen uw organisatie? (*masculinity/power distance)*
  Consensus of hierarchie? (speelt leeftijd een rol?)
    - Zie je verschillen in het maken van keuzes tussen Nederlandse en Marokkaanse stakeholders?
    - Is er ruimte voor een vrouwelijke benadering? Zo ja, wat zou daar in de huidige context voor nodig zijn? *i.e. person-oriented caring vs goal-oriented competitive*

Appendix B: extensive results table

Respondent details			Results				
Actor	**Part of Greenport Agadir**	**Cross-border contact**	**Operations of Moroccan cluster**	**Characteristics Moroccan actors**	**Characteristics Dutch actors**	**Elements of national culture influencing an innovation cluster**	**Thematic keywords**
MGA- A	No	Little	Young professionals bring knowledge to the cluster from working abroad. Costs are a major barrier to technology adoption.	Knowledge is shared within the cooperative. No knowledge is shared outside the cooperative.	Dutch technology suppliers are mainly focused on sales.	Collectivism is recognized in Moroccan knowledge sharing within the cooperative, influencing the cluster positively. Masculinity is recognized in Moroccan knowledge sharing outside the cooperative, influencing the cluster negatively.	Collectivism, masculinity
MGA- B	Yes	Yes	There is a branch organisation present, representing local growers and performs independent R&D. Knowledge is transfer through demonstration, trainings, presentations and digital media. Observability, relative advantage and affordable costs are drivers to technology adoption. Although previous discussions, a shared vision among growers and the government is missing. The actor demands an open-table discussion with EU governments to discuss the fluctuating market.	The actor is focused on fulfilling growers' present needs rather then long-term projects. Growers share knowledge and collaborate as they benefit themselves. Building trust is important for collaboration.	Dutch technology suppliers are mainly focused on sales.	Short-term orientation is recognised at the Moroccan grower association, influencing the cluster negatively. Masculinity and femininity are recognized in Moroccan knowledge sharing to gain personal benefits, influencing the cluster both positively and negatively. An individualistic focus is recognised among Moroccan growers and governmental bodies, influencing the cluster negatively.	Short-term orientation, femininity, masculinity, individualism
MGA -C	No	No	The cooperative performs R&D in-house. Cooperatives are included in the discussions with the government.	The farm managers are focused on ad-hoc short-term oriented problems, while the top-management has a long-term orientation. Moroccan cooperatives have a hierarchical structure with top-down decision-making. Knowledge is shared within the cooperative. little knowledge is shared outside the cooperative.	-	High power distance is recognised at Moroccan cooperatives, influencing the innovation cluster negatively. Collectivism is recognized in Moroccan knowledge sharing within the cooperative, influencing the cluster positively. Masculinity is recognized in Moroccan knowledge sharing outside the cooperative, influencing the cluster negatively.	Power distance, collectivism, masculinity
MGA -D	No	No	Farm managers have the following focus: 1) yield, 2) water use reduction. Costs are the main barrier to technology adoption. Growers need financial support to invest in technology. Subsidy for drip irrigation resulted in higher water usage.	Farm managers from various cooperatives follow classes at the university, stimulating knowledge transfer between cooperatives.	-	Short-term orientation is recognised in the farm managers focus, influencing the innovation cluster negatively.	Short-term orientation
MTS	No	Little	There is a platform for innovation and technology transfer present, facilitating cooperation between public and private actors. Observability and relative advantage are drivers to technology adoption Training is necessary to educate growers on using technology.	-	-	-	-
MKI-A	Yes	Yes	The knowledge institute collaborates with local and international growers, cooperatives and knowledge institutes. The governmental aggregation plan is used by 40% of the targeted group.	Moroccan people speak mostly French and a few people speak English. Moroccan people are relaxed and enjoy making jokes and fun in their work.	Dutch people speak English well. Dutch people make some jokes but are generally serious, direct and strict in their work. Dutch people have an open attitude. Dutch people show physically distant behaviour.	Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. Difference in punctuality between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively.	Language, punctuality, power distance

			There is a building for an incubator on horticultural innovations. However, there is no activity and a roadmap is lacking. Costs and lack of knowledge are the main barriers to technology adoption. Observability and relative advantage are main drivers. Growers are mainly focused on yield and do not consider sustainability as it is a vague concept.	Older Moroccans have a closed and strict attitude. The new generation is more open. Moroccan people show physically open behaviour. Moroccans are not strict in time. Respect for hierarchy and older people is highly valued. Moroccan organisations have an hierarchical structure with top-down decision-making.	Dutch people are strict in time and appointments. Dutch people show less respect for hierarchy.	High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively.	
MKI-B	No	Little	The knowledge institute is located outside the Sous-Massa region and has no relations with actors in the region. There is a lack of collaboration and coordination between the ministries of agriculture and energy. Costs are not a major barrier to technology adoption. Growers are not open to change as long as their yield is profitable.	Mutual respect for cultural difference between Moroccan and Dutch actors is highly valued. Moroccan people are less strict in time.	Dutch people are strict in time.	Difference in punctuality between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. An individualistic focus is recognised among the Moroccan ministries of agriculture and energy, influencing the cluster negatively.	Punctuality, individualism
MKI-C	No	No	Costs are a major barrier to technology adoption. Adaptation of technology to the local context is necessary to stimulate adoption. The institute collaborates with the branch organisation, chamber of agriculture, growers and national and international knowledge institutes.	Transferring knowledge to growers is difficult e.g. because some growers are analphabetic.	-	-	-
MGI-A	No	No	There is a governmental plan for development of the agricultural sector. A roadmap to achieving the determined visions is not present. The governmental institute collaborates with universities and research institutes. There is a shared mission among the governmental institute and branch organisations. The relative advantage is a main driver to technology adoption. The desalination plant changed management from the water basin agency to the agricultural ministry as the agricultural sector is the main user.	Understanding the local context of Moroccan and Dutch actors mutually is highly valued.	-	-	-
MGI-B	No	No	The desalination plant changed management from the water basin agency to the agricultural ministry as the agricultural sector is the main user.	Knowledge is transferred to growers. Defining a shared mission on water use among stakeholders is difficult as actors defend their own needs.	-	An individualistic focus is recognised among stakeholders, influencing the cluster negatively.	Individualism
MGI-C	No	No	There are bilateral relations between the Moroccan governmental institute and EU Commission.	Knowledge is transferred to growers.	-	-	-
DGA	Yes	Little	-	Little knowledge is shared among cooperatives and sometimes within the cooperative because of competition. Older growers are more traditional and individualistic. Indistinct communication. Building trust, showing respect and private conversations stimulate open and clear communication. Religion influences the working environment.	Knowledge sharing and participating in working groups is common among growers. Understanding the Moroccan local context and culture is highly valued. Direct communication. Long-term orientation with short- and long-term deliverables.	Masculinity is recognized in Moroccan knowledge sharing, influencing the cluster negatively. Femininity is recognized in Dutch knowledge sharing, influencing the cluster positively. Short-term orientation is recognised among Moroccan actors, influencing the innovation cluster negatively. Long-term orientation is recognised among Dutch actors, influencing the innovation cluster positively.	Masculinity, femininity, short-term orientation, long-term orientation, power distance

				Focused on ad-hoc problems and short-term strategies. Hierarchical organisational structure with top-down decision-making.	Somewhat flat organisational structure and consensus building in decision-making.	High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. Low power distance is recognised at Dutch actors, influencing the innovation cluster positively.	
DTS-A	Yes	Yes	Adapting western technologies to the local context is necessary. Training growers in using technology is needed. Time intensive training creates a strong stakeholder relation. Mutual respect is necessary to build stakeholder relations. To growers, yield is a main driver in strategic choices.	Most Moroccans are interested in innovation. Older growers are more traditional and less open to technology. Moroccan growers do not want to feel belittled. Nuanced indistinct communication. Short-term investments. Younger generations are more willing to long-term investments. Hierarchic organisational structure with top-down decision-making.	The actor has the motive to stimulate sustainable food production and expand it's own sales. Understanding the Moroccan local context and culture is important. Adaptation of Dutch actors to this context is needed. Direct communication. Long-term investments. Flat organisational structure with bottom-up decision-making.	Short-term orientation is recognised among Moroccan growers, influencing the innovation cluster negatively. Long-term orientation is recognised among Dutch growers, influencing the innovation cluster positively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. Low power distance is recognised at Dutch actors, influencing the innovation cluster positively.	Short-term orientation, long-term orientation, power distance
DTS-B	Yes	Yes	Costs are a major barrier to technology adoption. Observability, relative advantage and explaining the return-on-investments are the main drivers to technology adoption. Moroccan growers have not learned to invest as interest on borrowed money is prohibited in the Islam Respect, patience and gratefulness are important values to build relations.	Older growers are more conservative. Training young growers in using technology is necessary. Direct communication can be experienced as insulting. Less punctual in time and decision-making progress. Focused on short-term results. Growers show competitive and individualistic behaviour. Hierarchical structure with top-down management.	The actor has the motive to stimulate sustainable food production and expand it's own sales. Understanding the Moroccan local context and culture is important. Direct communication. Punctual in time and making progress.	Moroccan religious influences affect the innovation cluster negatively. Difference in punctuality between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. Short-term orientation is recognised among Moroccan actors, influencing the innovation cluster negatively. Masculinity is recognized among Moroccan growers, influencing the cluster negatively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively.	Religion, punctuality, short-term orientation, masculinity, power distance
DTS-C	Yes	Little	Research on adaptation of western technology to the local context is needed. Costs are a major barrier to technology adoption. Relative advantage and explaining the return-on-investment are the main drivers to technology adoption. Mutual respect is a key value to build relations.	Knowledge is relatively easy to explain to Moroccan because of a high level of higher educated citizens. Direct communication can be experienced as pushing. Les strict in time and appointments. Hierarchic structure with top-down decision-making.	The actor has the motive to stimulate sustainable food production, decrease water use and expand it's own sales. Understanding the Moroccan local context and culture is important. Language differences with Morocco form a barrier to communication. Direct communication. Strict in time and appointments. Bottom-up decision-making. Collaboration with other actors including the competition is common.	Difference in punctuality between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. Low power distance is recognised at Dutch actors, influencing the innovation cluster positively. Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. Femininity is recognized among Dutch actors, influencing the cluster positively.	Punctuality, power distance, language, femininity
DKI	Yes	Yes	Funding scarcity is a main barrier to technology adoption and conducting research. Mutual trust is a key value to overcome cultural differences.	Knowledge institutes apply traditional teaching methods. Moroccan people do not speak or speak a little English. Institutions started a shift to make English more important. Hierarchical structure with top-down decision-making. There is competition among actors. Not all actors are open to collaborate.	Morocco is seen as a gateway to do business in Africa. Knowledge institutes are open to new teaching methods. Punctual in time. Mainly long-term oriented. Sales teams have a short-term orientation.	Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. Masculinity is recognized among Moroccan actors, influencing the cluster negatively.	Language, power distance, masculinity, punctuality short-term orientation, long term orientation

				Less punctual in time. Actors leading the sectoral change have a long-term orientation. Focus on ad-hoc projects.		Difference in punctuality between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. Short-term orientation is recognised among Moroccan actors and Dutch sales teams, influencing the innovation cluster negatively. Long-term orientation is recognised among Dutch and some Moroccan actors, influencing the innovation cluster positively.	
DCF-A	Yes	Yes	Moroccan stakeholders in the impact cluster are open for sectoral change. Mutual trust is a key value to knowledge transfer.	No knowledge sharing and collaboration among competing growers. Generally short-term oriented. Actors leading the sectoral change have a mid-term orientation. Hierarchic organisational structure with top-down decision-making. Not all Moroccans speak English (well). Moroccan institutions started a shift to make English more important.	The actor has the motive to stimulate sustainable food production, increase the yield and expand the Dutch market. Mainly long-term oriented. Sales teams have a short-term orientation. Knowledge sharing and collaboration is common among growers. Flat organisational structure with bottom-up decision-making and consensus building. Dutch people often do not speak French.	Short-term orientation is recognised among Dutch sales teams, influencing the innovation cluster negatively. Mid- and long-term orientation is mainly recognised among Dutch and some Moroccan actors, influencing the innovation cluster positively. Masculinity is recognized among Moroccan actors, influencing the cluster negatively. Femininity is recognized among Dutch actors, influencing the cluster positively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. low power distance is recognised at Dutch actors, influencing the innovation cluster positively. Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively.	Short-term orientation, long-term orientation, masculinity, femininity, power distance, language.
DCF-B	Yes	Yes	Moroccan stakeholders in the impact cluster are open to sectoral change. Tight cultural beliefs, trust, mutual respect and a long relationship makes collaboration easier.	Distinct communication.	The actors' motive is to stimulate sustainable food production, increase the yield and expand the Dutch market. Dutch organisations employ Moroccan-Dutch people to bridge language and cultural differences. Direct communication	Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively.	Language
DCF-C	Yes	Yes	Knowledge institutes have difficulties in reaching growers. Branch organisations are used to bridge these actor groups. Mutual trust stimulates knowledge sharing.	Moroccan actors show traditional behaviour. French is a first language. Moroccan people often do not speak English. Actors show individualistic and competitive behaviour. Hierarchical structure with top-down decision-making.	Understanding the Moroccan local context and culture enhances the collaboration. Dutch organisations employ Moroccan-Dutch people to bridge cultural differences. Dutch people often do not speak French. Knowledge sharing and participating in working groups is common among competing actors. Long-term orientation. Sales teams are short-term focused. Flat organisational structure with bottom-up decision-making.	Language differences between Moroccan and Dutch actors is recognised, influencing the innovation cluster negatively. Masculinity is recognized among Moroccan actors, influencing the cluster negatively. Femininity is recognized among Dutch actors, influencing the cluster positively. Short-term orientation is recognised among Dutch sales teams, influencing the innovation cluster negatively. Long-term orientation is mainly recognised among Dutch, influencing the innovation cluster positively. High power distance is recognised at Moroccan actors, influencing the innovation cluster negatively. Low power distance is recognised at Dutch actors, influencing the innovation cluster positively.	Language, masculinity, femininity, long-term orientation, short-term orientation, power distance