Size does matter, how motives and commitment influence the willingness to engage in the co-creation process in an ecosystem context

A qualitative study towards motives of organizations to participate in an ecosystem, and how an organizations willingness is influenced by the motives and the perceived commitment of other organizations.

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Abstract

Academics have been written a lot about the topic of ecosystems. Multiple motives to actively engage in the co-creation process in an ecosystem can be found in literature. Unfortunately, most of these motives are based on the outcomes of an entire ecosystem. More insight in these motives is needed, because motives are unique for every actor. Additionally, knowledge about a partner's motive enhances the integration of resources, which is a vital element for co-creation to take place. The goal of this study is to extent the current knowledge about the motives of singular organizations to engage in the co-creation process in a multi-stakeholder ecosystem context. Furthermore, there will be checked if the presence or absence of motives and the commitment of others has an influence on the willingness to engage in the co-creation process. In this qualitative study a total of 15 respondents have been interviewed. In addition to previously identified relationship motives, experimentation motives and reputation enhancement motive, two other motives were identified. These are called a helping motive and an ecosystem sustainability motive. Additionally, there has been found that when an organization possesses more motives, the willingness to engage is higher as well. It has to be noted that the organizations which possess more motives also are the larger organizations which have deep pockets. Unfortunately, no clear answer about the influence of the perceived commitment on the willingness to engage in the co-creation process was found. Therefore, more research into the perceived commitment of others is necessary, as well as research into the two new founded motives to engage in the co-creation process. It is uncertain if these motives are applicable to other ecosystems as well.

Keywords: Motives for co-creation, motivation, willingness to co-create, ecosystems, business ecosystems, perceived commitment of other, social exchange theory.

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Chapter 1. Introduction

The concept of ecosystems is booming, both in the public domain as well as in the academic literature press. In top management journals the word ecosystem appeared seven times more often in the title or abstract when comparing 2013 and 2018 (Jacobides, Cennamo, & Gawer, 2018). When the Chinese internet giant Alibaba went public in 2014, they used the word 'ecosystem' a total number of 160 times in their prospectus (Deloitte, 2015). An example of the rise in public interest in ecosystems is the development of the Brainport Industries Campus in the ecosystem Brainport Eindhoven, opened by the King of the Netherlands (Theeuwen, 2019). More examples of the rise in interest can be found within multiple other sources. For example, Forbes is stating that ecosystems will be the main driver of innovation in 2020 (Geene, 2020). Former major from Eindhoven, Rob van Gijzel, stated in 2011 that the main asset in the region of Eindhoven was it's open-innovation strategy and the willingness to cooperate (Doorduyn, 2011), making it a blueprint ecosystem.

In popular literature ecosystems are then defined as dynamic and co-evolving communities of diverse actors which try to capture new value through both collaboration and competition (Deloitte, 2015, p. 5). Within an ecosystem, different entities work together to create value they cannot create on their own (Lin, Wang, & Yu, 2010). This process of collaboration is called co-creation. Co-creation is defined as a joint collaborative activity by parties involved in direct interaction, aiming to contribute to the value that emerges for one or both parties (Grönroos, 2012, p. 1523).

Focusing further on the concept of co-creation, the element of resource integration is seen as essential for co-creation to take place (Frow et al., 2014). According to Pera, Occhiocupo, and Clarke (2016) the integration of resources is directly related to motives to participate in co-creation within ecosystems. Therefore, research into the motives is important to get a better understanding how co-creation is taking place. Identifying actors' motives is essential for setting up effective resource integration practices (Pera et al., 2016). Unfortunately, the motives why organizations participate in ecosystems are underexposed in academic literature (Pera et al., 2016). Research into motives to participate in an ecosystem has been focusing mainly on the main outcomes of an ecosystem itself. These main outcomes are mostly generalized to benefits for an organization (Lin et al., 2010). This is a major lack, because motivation is unique for all actors (Findsrud, Tronvoll, & Edvardsson, 2018). It is therefore necessary to take the

motives of individual actors into account instead of the outcomes of the whole ecosystem itself. In addition, research into motives is important for other reasons. Motives impel action (Locke & Latham, 2004), and therefore it is not the integration of resources that ensure co-creation, but the motivation to share and implement those resources for co-creation to take place (Findsrud et al., 2018; Frow et al., 2014).

Research of Pera et al. (2016) focused on the why question towards the engagement of actors to participate in co-creation in a business ecosystem context. As a main implication the authors state that it is uncertain if the three motives identified; relationship motives, experimentation motives and reputation enhancement motives are applicable to other ecosystems as well. This uncertainty can be backed up by academic research. First, the research of Pera et al. (2016) focused on the case study of the World Expo 2015 in Milan, which is a temporary and set up event. It is uncertain if these motives are applicable to ecosystems which evolved throughout the years and which have an unlimited time frame. According to Nadkarni, Chen, and Chen (2016), the time horizon of an organization has implications for strategic choices, and therefore different motives could be applicable. Second, the world expo is an event, in where the purpose is to educate the public, share innovation, promoting progress and fostering cooperation. This is different than the, for example, earlier mentioned ecosystem of Brainport Eindhoven, in where the aim is to maintain and develop the regional innovation ecosystem (Brainport, N.D.).

The approach in which Pera et al. (2016) conducted their study has led to two other implications. These implications do not focus specifically on the generalizability of the outcomes, but on the method how the study has been conducted. First, the research is divided in a *why* and a *how* component. The 'why' question lead towards three motives that enhances participation in ecosystems. The 'how' question focused on three broad forms of encounter moments. The combination of these two parts only answer the question if and how co-creation is taking place. Multiple authors state that co-creation is a continuous and evolving process (Payne, Storbacka, & Frow, 2008; Roser, DeFillippi, & Samson, 2013). Unfortunately, Pera et al. (2016) identify the co-creation process as a process which is occurring or not. They fail to take the co-creation process into account as an evolving process, in where a degree and form of commitment can be identified. The extent of participation in the co-creation process is thus not taken into account. This extent of participation can be seen as an important factor, because it is related to the motivation of an actor. Motivation is vital to the extent an actor is leveraging resources into the

co-creation process (Locke & Latham, 2004). They presume that motivation is key for understanding the willingness to integrate resources and therefore key for the willingness to co-create. Thus, the extent of participation is related to the motivation of an actor. The presumption by Locke and Latham (2004) that motivation is vital to the extend actors leverage resources supports the stated gap in the research by Pera et al. (2016) as well.

Additionally, the study by Pera et al. (2016) is only focused on the positive aspect of co-creation. In other words, it only focusses on the motives if organizations are willing to participate in co-creation. It does not state anything about a more reserved approach towards participation in the co-creation process. Free rider behavior towards organizations that are very willing to engage in the co-creation process is for example not mentioned. A reserved approach of partners, or simply stated negative behavior, has thus not been taken into account at all. Negative behavior of partners can influence an organizations own willingness to engage in the co-creation process. This is rooted within the social exchange theory (Cropanzano, Anthony, Daniels, & Hall, 2017; DeLamater & Ward, 2006). Basically, the social exchange theory in an organizational perspective states that an actor has an initial treatment towards another actor. This initial treatment leads to a reciprocal response to the action. The response then leads to a positive or a negative relationship, based on the nature of the initial action (Cropanzano et al., 2017, p. 2). In other words, the perceived commitment of another actor influences an actor's own behavior. It is thus assumed that a negative approach or a positive approach from partners influences an organizations own willingness to engage in the co-creation process.

In conclusion, even though the original study of Pera et al. (2016) has been important and innovative for looking into actor specific and unique motives, multiple implications can be identified. First, it is uncertain if the motives described are relevant, applicable and complete when focusing on other ecosystems. Second, the focus of the research is only on the how and why question, but the extent in which an organization is willing to participate in the co-creation process is not taken into account. This can be identified both as the extent an organization is willing to co-create, but also as in terms of how reserved an organization is. As a third and last implication, the focus on positivity only can be seen as an implication. A more reserved approach has not been taken into account. Looking into the social exchange theory, it is expected that the willingness to engage in the co-creation process is affected by the commitment of other organizations.

These gaps in the academic knowledge leads to the following research objective:
The goal of this research is to extent the current knowledge about how motives of stakeholders as well as the commitment of others affect the willingness to engage in the co-creation process.

This research objective leads to the following research question:
How do motives to engage in the co-creation process and the perceived commitment of others affect the willingness to engage in the co-creation process in an ecosystem context?

Research into these motives is important for both an academic as well as a practical reason. It is important for an academic reason because, as stated above, research into motivation in a non-temporary ecosystem context has not been conducted. This research is partly a replicate research of the research into motives and resources for value co-creation in a multi-stakeholder ecosystem (Pera et al., 2016). They state themselves that a direction for further research is to replicate this research in a different setting. Because they conducted the research in a case study, a limitation they put forward is that is uncertain if findings could be generalizable. For practical reasons this research is important, because it will gain insight in complex ecosystems. According to Moore (2006, p. 31) ecosystems should be the foundation for competition policy, regulation and antitrust actions. This is mainly because the importance and interest ecosystems have in today's economy. This could help policymakers and organizations to build new or improve existing ecosystems.

This paper is divided into five sections. The first section gives a brief overview of the theory, including the context of this research. The second section elaborates on the methodology. In the third section the main results will be presented. The conclusions will be presented in the fourth section, where after the discussion will be provided in the fifth section.

Chapter 2: Theoretical framework

In this theoretical framework the main theory will be presented. First, the concepts of ecosystem and co-creation will be explained. Ecosystems are the context in which the research is taking place, and co-creation is inherent to the ecosystem context and is therefore described aside the context. In the second part the dependent variable of willingness to engage in co-creation will be defined. Hereafter the motives to engage in this co-creation process will be elaborated on. This is the first independent variable. The second independent variable is discussed fourth, which is the perceived commitment of other organizations. At last, the conceptual model will be presented. A short summary of the theoretical framework and how the theory is interrelated will be provided too.

2.1 Research context

An explanation of the research context will be provided first. This research context consists of both the concept of ecosystems and the process of co-creation. This is necessary to limit the research scope.

2.1.1 Ecosystems

Ecosystems are the context of this research and therefore a definition and explanation is needed. This is necessary for limiting the research scope. In this study, the following definition will be used. Ecosystems are defined as consciously created groups of three or more autonomous but interdependent organizations that strive to achieve a common goal and jointly produce an output (Raab & Kenis, 2009). In the following paragraph an overview will be provided first, whereafter there will be elaborated on why the definitions by Raab and Kenis (2009) has been chosen.

In general, the term ecosystems in a business context, refers to a group of interacting firms that depend on each other activities (Jacobides et al., 2018, p. 2256). Unfortunately, there is no consensus about the definition used in literature. Jacobides et al. (2018) identified three streams in ecosystem literature, namely the business ecosystem stream, the innovation ecosystem stream and platform ecosystem stream. Aarikka-Stenroos and Ritala (2017) identified two additional streams, namely the service ecosystem stream and the entrepreneurial stream. To make it more complicated, different terms are being used side by side. Clarysse, Wright, Bruneel, and Mahajan (2014) state that a business ecosystem finds it roots in the idea of a value network, which they specify as a group of companies which simultaneously create value by combining their skills and assets. To continue with the term network, Raab and Kenis (2009)

define networks as consciously created groups of three or more autonomous but interdependent organizations that strive to achieve a common goal and jointly produce an output. Perks, Kowalkowski, Witell, and Gustafsson (2017) name such a similar collaboration even more differently, namely as a value platform. They define it then as dynamic configurations of resources upon which network members cocreate value through a set of specific practices.

All these terms are thus intertwined. This conclusion is strengthened by different definitions of the term business ecosystem used by multiple authors. Clarysse et al. (2014) state that business ecosystems are organized as complex networks of firms. A similar, earlier mentioned term, namely networks, is used to explain the orchestration of the other term, namely business ecosystems. This is the same for the definition by Mäkinen and Dedehayir (2012). They describe business ecosystems as a network of firms, which collectively produce a holistic, integrated technological system that creates value for customers.

Hence, a lot of different terms and definitions are being used within academic literature at the same time. No consensus is being reached and the definitions are intertwined. The concepts are called differently, and the definitions are not the same. But on the other hand, they all focus on the same phenomenon. Namely, a complex system of multiple organizations working actively together. Similarities can be identified too. These similarities back up the conclusion that these concepts aim at the same phenomenon. Even though the definitions do not state the similarities explicitly, almost all articles appoint the complexity of the phenomenon (e.g. Brusoni & Prencipe, 2013; Clarysse et al., 2014). In addition, these articles state that all these phenomena, although named differently, are essential for collaboration between multiple actors to occur. Therefore, it can be concluded that the different named concepts point at the same phenomenon. This all is backed by the literature review on ecosystems, in where multiple streams can be identified which all have the term ecosystem as a base (Aarikka-Stenroos & Ritala, 2017).

Within this study the term *ecosystem* will be used. This is for two reasons. First, the aim of this research is to partly replicate the research of Pera et al. (2016) in a different setting and to further extent their findings. In their study the term ecosystem is used, and therefore this term will be used in this research as well. Second, the term *ecosystem* itself is often used as an umbrella term to cover a wide range of concepts (Aarikka-Stenroos & Ritala, 2017). By adding business, innovation or any other word that is identified as a literature stream, it therefore also

means that all other streams are excluded from this research. There has been chosen to keep the term as wide as possible, in order to keep the generalizability high.

Now it is clear that the term ecosystem will be used further throughout this study, it is necessary to look into the characteristics of the mentioned literature streams of ecosystems and which characteristics they have in common. According to (Aarikka-Stenroos & Ritala, 2017) two main constituents in the ecosystem literature can be identified which are characteristic for all literature streams. First, there is the co-evolutionary logic, which focusses on the interaction and processes between the actors, technologies and institutions and how the ecosystem is evolving because of the interaction processes. Second, there are boundaries and compositions, which identifies contextual breadth within the actors, technologies and institutions. Concretely, the boundaries and compositions form the framework of ecosystems in where a shared purpose, shared values, shared intentions and a form of affiliation.

To conclude, there are multiple definitions in literature that do take parts of the previous stated characteristics into account. One is the definition by Raab and Kenis (2009). Ecosystems are defined as consciously created groups of three or more autonomous but interdependent organizations that strive to achieve a common goal and jointly produce an output. For several reasons this definition fit the research context. First, there is a focus on a common, shared goal. The mentioned framework for ecosystems consists of several shared elements, and a shared element in the definition is thus essential. In the phrase *"strive to achieve a common goal and jointly produce an output"* elements of the framework could be identifiable. Secondly, the definition is focused explicitly on organizations instead of businesses. According to the co-evolutionary logic businesses and other different institutions work together in an ecosystem. The boundaries and composition constituent is also focused on the breadth of the ecosystem. Lots of different organizations can therefore be included. Additionally, the word *consciously* is included in the definition. By adding this word, it can be presumed that there is a shared purpose and shared intention as well. A last note that needs to be made is that other definitions could fit the two constituents as well. However, the definition by Raab and Kenis (2009) is because of its ease and the fitness of the constituents applicable to a wide range of ecosystem within all streams.

2.1.2 Co-creation

A great diversity can be found in academic literature when focusing on definitions of the concept of co-creation. An outline of the wide range of definitions will be provided first. Hereafter these definitions are applied to the earlier outlined research context of an ecosystem. This will show that from this variety only some definitions are applicable to the research context. In this study, co-creation is defined as a collaborative process in where organizations jointly produce an output.

Various scientific definitions of value co-creation are discussed in literature. Grönroos and Voima (2013) refer to co-creation as customers' creation of value-in-use where co-creation is a function of interaction. According to Payne et al. (2008) the co-creation process involves the supplier creating superior value propositions, with customer determining value when a good or service is consumed. Others state that value co-creation is shaped by social forces, is reproduced in social structures, and can be asymmetric or the actors involved (Edvardsson, Tronvoll, & Gruber, 2011). The focus of Roser et al. (2013, p. 23) is on the ongoing process in co-creation, and define it as an interactive, creative and social process between stakeholders that is initiated by the firm at different stages of value creation process. Galvagno and Dalli (2014, p. 644) see co-creation as the joint, collaborative, current, peer-like process of producing new value, both materially and symbolically. Grönroos (2012, p. 1523) refers to value co-creation as a joint collaborative activity by parties involved in direct interaction, aiming to contribute to the value that emerges for one or both parties. Simplified, value co-creation is the creation of value through collaboration of multiple actors.

These definitions are only a small grasp of the many definitions used in literature. It shows that there is no consensus as well about what co-creation is and how it should be defined. It is therefore inevitable that there are definitions which are not applicable to the research context of ecosystem. This is for three reasons. First, lots of research and definitions are based on co-creation on a business-to-consumer or a consumer-to-business perspective (Agrawal, Kaushik, & Rahman, 2015). Organizations as the main stakeholders in value co-creation only have been on the academic agenda for a short period of time. Because this research focusses on a business-to-business perspective, most of the business-to-consumer perspective definitions are not useful. The reason behind this exclusion is based on the nature of motives. Individual consumers participate in the co-creation process because of intrinsic motives (Ind, Coates, &

Lerman, 2020). Intrinsic motives cannot be identified at organizational level. Second, this consumer perspective of value co-creation is creating another problem. It is focused on a relationship in where value co-creation is conceptualized between a consumer and an organization and thus seen as a relationship of only two actors (Pera et al., 2016; Vargo & Lusch, 2004). This is a dyadic approach, but a business ecosystem environment is very complex and exist of multiple, at least three, actors. This dyadic approach is therefore not applicable to the context of the research. Third, some operationalized definitions are focused on a specific perspective, such as marketing or innovation (Agrawal et al., 2015). In the context of an ecosystem, as defined in the previous paragraph, this leads to a too narrow view of co-creation. For generalizability reasons ecosystem is defined as wide as possible, and therefore such a specific perspective is contradictory to this wide ecosystem view.

Multiple definitions thus do not fit into the context of this research. When assessing co-creation in an ecosystem context as described earlier in this chapter, one element can be identified as crucial. Multiple author state that resource integration is necessary for co-creation to take place (Agrawal et al., 2015; Pera et al., 2016; Singaraju, Nguyen, Niininen, & Sullivan-Mort, 2016). This is seen as a vital element of co-creation, because if actors do not integrate resources no creation of value can take place.

Some earlier mentioned definitions are thus not applicable to the context of this research. The context in where the collaboration between organizations form the central element, and this leads to another critical aspect which is needed in the definition of co-creation. The definition of ecosystems which will be used in this study has a phrase *"autonomous but interdependent organizations that strive to achieve a common goal and jointly produce an output".* Examples of definitions that fit this phrase are the definitions by Grönroos (2012), Roser et al. (2013) and Galvagno and Dalli (2014). Within these definitions the shared element is that value co-creation is an ongoing process between multiple actors. Firstly, these definitions fit the context because there is focused on multiple actors. Secondly, if organizations are interdependent and commonly strive for an output, there needs to be some form of interaction. The interaction with other actors within the concept of co-creation is seen as an ongoing process (Payne et al., 2008). In an ecosystem context, organizations are collaborating and collaboration is seen as a process. Concluded, in this study the process view of co-creation will be used, because this view fits the

research context of ecosystems. It is defined as a collaborative process in where organizations jointly produce an output.

2.2 Willingness to co-create

In this paragraph the willingness to engage in the co-creation process in an ecosystem will be explained. Because the degree of participation has not been taken into account in earlier studies, the willingness to co-create is an important addition to the academic field. Additionally, willingness is a latent variable which cannot be measured or observed easily. Therefore, an assumption based on several academic articles and theories is presented. In this study, the willingness to co-create is operationalized in terms of resource integration. In the following paragraph it will be explained why.

Unfortunately, no article has been found which states explicitly how the willingness to co-create was defined. However, Rosas and Camarinha-Matos (2009) did focus on the willingness to collaborate. They define this willingness to collaborate with other organizations as the fact that its interest can be better satisfied in collaboration with other organizations than while operating in isolation. Multiple interests were identified in this study, ranging from access to new resources, to sharing market risks and also increasing benefits. Focusing on the definition of willingness, an organization is willing to do 'something' when it perceives that it's interest can be better satisfied by doing this 'something'. Hence, an organization is willing to engage in the co-creation process if it assumes that the goals of the organization can be better satisfied when engaging in this co-creation process.

The problem concerning the measurability of the latent variable of willingness to co-create in a business-to-business perspective is then still not solved. Based on several academic articles the following assumption has been made. The more resources an organization is integrating in the co-creation process, the higher the willingness to engage in the value co-creation process. The theoretical background behind this assumption is explained below.

Three articles form the base for this assumption. First, the article by Neghina, Bloemer, van Birgelen, and Caniels (2017) do focus on the motives and the willingness to co-create. The context of this research is, unfortunately, a consumer-to-business context. The consumer-to-business context of co-creation is not applicable to this research. This is, as there will be more

specifically elaborated on later, because this consumer perspective is focused on intrinsic motives which are not taken into account in this study. On the other hand, the willingness to co-create described by Neghina et al. (2017) can serve as a guide for the business ecosystem context where this research is taking place in. The willingness to co-create is based on the willingness to work on the project in the near future, the willingness to invest time and the willingness to invest energy. Time and energy can be seen as a scarce resource for individuals. In a business context, the willingness to co-create could then be seen in terms of the amount of resources integrated into co-creation projects. Secondly, multiple authors identify that the integration of resources as a vital element in the co-creation process (Findsrud et al., 2018; Frow et al., 2014; Vargo & Lusch, 2016). Thirdly, the willingness to collaborate is simply based on the argument that an organization's needs are better satisfied when collaborating then when operating alone (Rosas & Camarinha-Matos, 2009).

Summarized, willingness to co-create cannot be observed or measured explicitly. Therefore, the willingness to engage in the co-creation process is operationalized as the integration of scarce resources, because organizations assume their needs can be better satisfied when scarce resources are integrated.

2.3 Motives for co-creation

This paragraph focuses on the motives to participate in co-creation. It is divided into three sections. First, a general view towards both motivation and motives will be presented. Then, main theory about motives to engage in the co-creation process in an ecosystem context will be elaborated on. Third, shortcomings and extension on motives in the context of non-temporary ecosystems will be presented as well.

Motivation and motives are similar concepts but have a different meaning. According to Locke and Latham (2004) the concept of motivation refers to internal factors that impel action and to external factors that can act as inducements to action. This is in line with the distinguishing between intrinsic and extrinsic motivation. Intrinsic motivated behavior is engaged for a person's own sake. For example, a person does something for the experience, rather than the reward that can be obtained (Ryan & Deci, 2000). On the other hand, extrinsic motivated behavior refers to behavior which is executed by the prospect of gain and loss (Cerasoli, Nicklin, & Ford, 2014). In other words, an actor is taking action because a reward is expected

when conducting a task or a penalty if failed or not executed. This reward or the penalty is out of control of the individual or the organization. Motives, on the other hand, are different. A long time ago the difference between motivation and motives was described by Peters (1956), and this distinguish that has been made more than 60 years ago is still applicable to everyday research. A motive is based on a desired outcome. Someone has a specific motive, because a specific outcome is expected. It is the presence of such a motive, that generates that someone is moving towards the specific outcome (Schuler, Fee Maier, & Liljedal, 2019). Hence, an actor has a specific motive, which generates action to accomplish an outcome. The concepts of motivation and motives are aligned. Motivation as well as motives are both based on the outcome. Motivation is the process to get to an outcome, in where a motive is a state of mind because a specific outcome is expected. If an organization has a motive for a specific outcome, it is the outcome as well in the form of an external factor that generates action to accomplish that outcome. An actor could argue it has a specific motive, but if that actor does not take action to accomplish the outcome there is a lack of motivation and the outcome will thus never be accomplished. The question is, does an organization have a specific motive if it is not motivated to take action and thus invest resources. The answer is no, because if an organization has a specific motive, it will take action and invest resources. There is a direct relationship between the presence of motives and the integration of resources (Pera et al., 2016, p. 4039). Hence, there is a direct relationship between the presence of a motive and motivation to accomplish an outcome.

Before the focus will be shifted towards motives and motivation to engage in the co-creation process in an ecosystem context, a more general view towards collaborations will be provided. This will be done because the motives for general collaborations form the basis for the motives for co-creation in an ecosystem context. In contrast to motives for co-creation in an ecosystem context, multiple authors did look into more general reasons and motives why organizations open up and collaborate in the first place. It is considered that interorganizational collaborations are necessary for organizations for remaining competitive (Malmström & Johansson, 2015). It is thus a strategic tradeoff within organizations, in where they try to keep their competitive advantage or gain a competitive advantage. This is in line with the statement of Hillebrand, Driessen, and Koll (2015). They elaborated on how an active attitude towards stakeholders can ultimately lead to a form of organizational wealth. Literature states another reason for engagement of stakeholders, which is an important aspect within the co-creation process as well

as within ecosystems, namely the simple reason that an organization does this to perform better (Homburg, Stierl, & Bornemann, 2013, p. 56).

In contrast to most research, Pera et al. (2016) did focus on the motives of individual organizations to participate actively in co-creation in an ecosystem context. They found three different motives which organizations in an ecosystem have to participate actively in the co-creation process. These motives are reputational motives, experimentation motives and relationship motives. Stakeholders are characterized by goal-directed behavior in order to accomplish a predetermined purpose. This purpose can be found within the different motives. Reputational motives derive from participating actively in an ecosystem. Personal recognition is an outcome that derives from reputational motives and can be a source of pride for consumers. But in a stakeholder perspective, organizations co-create because it increases the visibility of the individual organization. With a higher visibility a certain value is expected. The positive image of the ecosystem is expected to lead to this higher visibility (Pera et al., 2016). The predetermined purpose can be found within the other motives as well. Experimentational motives drive actors to share knowledge, experience and content which are necessary to innovate and therefore create new value. Relationship motives lead actors to share and therefore expand their network. Thus, it is the expected outcome in terms of value that leads that stakeholders participate actively in an ecosystem. This active participation can be seen as the motivation that an organization has to reach the expected outcome.

Combining this with the previous paragraph about the willingness to engage in the co-creation process, it is assumed that the presence of reputation enhancement motives, experimentation motives and relationship motives leads to a higher willingness to co-create. It is the investment of resources which is both rooted in the motives to engage in the co-creation process as well as in the willingness to engage in the co-creation process. Therefore, the following propositions are composed.

Proposition 1a. Organizations have reputation enhancement motives to participate in an ecosystem. The more a reputation enhancement motive is present, the more likely an organization has a higher willingness to engage in the co-creation process in a multi-stakeholder ecosystem.

Proposition 1b. Organizations have experimentation motives to participate in an ecosystem. The more an experimentation motive is present, the more likely an organization has a higher willingness to engage in the co-creation process in a multi-stakeholder ecosystem.

Proposition 1c. Organizations have relationship motives to participate in an ecosystem. The more a relationship motive is present, the more likely an organization has a higher willingness to engage in the co-creation process in a multi-stakeholder ecosystem.

It is questionable if other motives can be identified within a non-temporary ecosystem context. Within research, several extensions are proposed in research, for example intrinsic motives. Intrinsic motives have been a popular topic for academic research when focusing on the consumer perspective of co-creation. Lots of research identified multiple motives for consumer to engage in co-creation. Examples why consumers engage in co-creation are concerned with contributing to something they find interesting, having the opportunity express themselves and the ability to develop their knowledge by sharing and listening to others (e.g. Ind et al., 2020; Neghina et al., 2017; Schuler et al., 2019). Even though intrinsic motives could impel actions that lead to value co-creation within organizations in an ecosystem, these motives will not be taken into account in this research. This is because intrinsic motives can be identified only within individuals (Muller & Kolk, 2010). Intrinsic motivated behavior is only performed for no other reason than the activity itself (Findsrud et al., 2018, p. 507). It is common knowledge that an organization always strive for a goal and actions in organizations thus always have a purpose. Therefore, in organizations intrinsic motives cannot be identified and are therefore not included.

Additionally, because there is a difference between a temporary and non-temporary ecosystem, there is a difference in time-framing as well. Organizations make different strategic choices when the time horizon is different (Nadkarni et al., 2016). Taking this and the previously stated about motives into account, it is questionable if the elaborated-on motives are complete. Therefore, the following proposition is composed.

Proposition 2. Organizations could have other, unknown extrinsic motives to participate in an ecosystem.

2.4 Perceived commitment of other organizations

In this paragraph the perceived commitment of other organizations is elaborated on. First, it is elaborated on why organizations could have a more reserved approach towards collaborations in the first place and why the perceived commitment of other organizations is important to include within this study. Then, the social exchange theory is explained together with a clarification why the social exchange theory forms the basis for the perceived commitment of other organizations. Ultimately, a proposition about the perceived commitment is proposed. In this study, the perceived commitment of other organizations is operationalized as an initial contribution of another organization to the co-creation process. Or contradictory, as an initial harm of another organization to the co-creation process.

Previously it is explained what drives organizations to collaborate with other organizations. Multiple drivers were identified, and these drivers are based on an expected outcome. In contrast, multiple reasons why organizations are more reserved towards collaboration and therefore do not want to cooperate can be identified as well. For example, organizations want to keep their firm specific assets internally (Brüggelambert, 2009). A huge negative effect of collaboration projects is the leakage of core competitive knowledge to collaboration partners, which keeps organizations away from collaborations (Emden, Calantone, & Droge, 2006). The possibility of conflicting values and cultures are also named as possible reasons that an organization decide not to cooperate (Gyrd-Jones & Kornum, 2013) Another reason that organizations do not collaborate is that they are confident their own competences are sufficient, for example for technological innovation (Leiponen, 2002). In contrast to organizations that do contribute to the co-creation process, some organizations do not see the necessity to collaborate. In addition, it is commonly known that freeride behavior is an activity that is taking place within all different types of collaborations. Therefore, it is necessary that a more reserved approach is looked into too, and to see how this is influencing the co-creation process. It is thus a strategic choice from organizations to choose how and if they collaborate or not. This study is not focused on this strategic choice itself, but if and how the influence of a partner's strategic choice is on an organization's own willingness to engage in the co-creation process.

The reason why a more reserved approach to co-creation could be from influence on the co-creation process can be found within the social exchange theory. Due to the long and large portion of research that has been committed to the social exchange theory in multiple

disciplines, the social exchange theory is not a single theory anymore. According to Kessler (2013), the social exchange theory evolved towards a family of conceptual models. These conceptual models are not closely linked anymore. That is because it has been researched in a widespread of different disciplines, for example in management and psychology. In the broad and historic view of the social exchange theory, four major themes can be seen as the fundamentals of the social exchange theory and can be identified as the subject of much analysis within the social exchange theory. These are interdependent actions, self-interest, rules of exchange and the formation of interpersonal relationships (Kessler, 2013). Summarized, these four themes can be identified in the following way. First, actors, this could be organizations or individuals, work together and are in some way dependent on each other. This is broad theme of *interdependent interaction*. Second, there is a form of *self-interest* within the social exchange theory. This is also rooted in the motivation of actors. Third, reciprocity is an important *rule of exchange.* Reciprocity is the tendency of people to respond to a beneficial action by returning a benefit and to a harmful action by returning a harm (Kessler, 2013, p. 723). The fourth and final theme is the *formation of interpersonal relationships.* Due to the interaction between actors a relationship is being built. Trust, commitment and satisfaction are examples of variables within such a relationship (Lambe, Wittmann, & Spekman, 2001). The dependency, self-interest and the reciprocity in terms of exchange comes back in this relationship.

For collaborations to occur, a form of social exchange needs to be established. Malmström and Johansson (2015) elaborate that social exchange is critical for, for example, shared innovation to succeed. The earlier mentioned reciprocity forms the basis of many research into these theories (Cropanzano & Mitchell, 2005). The concept of reciprocity is seen as critical within the social exchange theory (Cropanzano et al., 2017). Even though this reciprocity is an important aspect within the social exchange theory, there are multiple streams on how to define it (Cropanzano & Mitchell, 2005, p. 876). First, reciprocity can be seen as a form of interdependence exchange. Within this stream there is a focus on the bidirectional transaction between parties. Due to the focus on this transaction reciprocity is seen as formal. Bargaining is not explicit included, and therefore cooperation is encouraged. Second, reciprocity can be seen as a *folk belief.* This means that reciprocity is seen as something cultural, stated in terms of *you get what you deserve* by Gouldner (1960). Third, reciprocity is seen as a norm. The difference with a folk belief is that within a norm it is taken into account how an actor should

behave. Because within this study there is a focus on the co-creation process between formal entities, reciprocity is seen as a form of exchange and transaction between organizations. In this stream cooperation is encouraged, which is vital to the co-creation process. In this study, reciprocity will be seen as a form of interdependence exchange. The other two streams are based on norms and cultures. Norms and culture differ around the world, and because of the generalizability of this study there has been chosen to see reciprocity as an interdependence exchange. Additionally, ecosystems are defined in terms of interdependent organizations. Reciprocity defined as an interdependence exchange therefore fits the research context.

To conclude, reciprocity in the context of this study means that if an actor does harm to another actor, for example by not investing resources in a collaboration or in the form of free riders' behavior, it can be seen as negative impact. This can in the end influence the relationship negatively. In contrast, when other organizations participate actively in the co-creation process, it can be seen as a positive hedonic value. The perceived commitment is then thus high, and this leads to an initial benefit. Organizations are then willing to invest in the co-creation process itself. Multiple authors state that this could influence collaborations and the co-creation process. This leads to the following proposition:

Proposition 3. The perceived commitment of others has an influence on an organizations own willingness to engage in the value co-creation process.

2.5 Conceptual model

In figure 1 the conceptual model for this research has been visualized. As stated in the introduction, the aim of this research is to broaden current knowledge about motives to engage in value co-creation in business ecosystems. It is expected that the presence of extrinsic motives leads to a higher willingness to engage in value co-creation. In addition, it is expected that the perceived commitment of other organizations has an effect on this willingness as well.

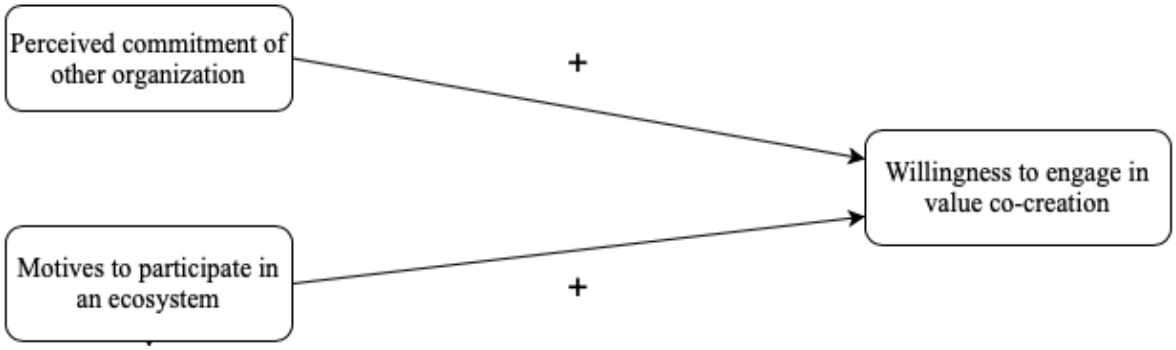

Figure 1. Conceptual model.

This conceptual model is based on the different theory and assumptions. Multiple motives that lead to an active participation in an ecosystem can be found within academic literature. It is assumed that these motives are applicable to other ecosystems as well.

It is expected that the presence of the motives is positively related to the willingness to engage in value co-creation in an ecosystem context. This is rooted within the assumption regarding the willingness to engage in co-creation and the basis of the described motives. The basis for both the motives and the willingness is namely the expectation of certain value. Organizations have specific motives because they think they will obtain a specific value. A higher willingness to engage in co-creation can partly be considered in terms of resources invested. Such an investment is made because an organization assumes will benefit in some form of value. It is therefore assumed that if an organization has more motives, this organization is more willing to engage in the co-creation process.

Additionally, it is expected that the perceived commitment of other organizations has an impact on the willingness to participate in the co-creation process as well. This is rooted within the social exchange theory. It is assumed that the willingness of organizations to engage in the value co-creation process is affected by the perceived commitment of other organizations. If a partner's commitment is perceived as high, it is assumed than an organization is more willing to engage actively in the co-creation process. If the perceived commitment of a partner is low, the own willingness to participate will be lower as well.

Chapter 3: Research design

In this chapter the methodology will be outlined. First, the research method will be presented. Hereafter the case of Brainport Eindhoven will be described. The process of data collection will be elaborated on next. Then an explanation of the data analysis is outlined. The chapter will end with an overview on how the validity and reliability has been taken into account throughout the study.

3.1 Research method

This study has been conducted in a qualitative way. This has two reasons. In the following paragraph these reasons will be explained with the support of other research and academic data.

First, the initial study by Pera et al. (2016) about motives to participate in an ecosystem has been conducted in a qualitative way as well. The aim of this research is, partly, to check if these motives are applicable to other ecosystems too. Because this is study is based on the study of Pera et al. (2016), the two researches need to be conducted in the same way in order to keep the validity of the replication research as high as possible (Eisenhardt, 1989; Vennix, 2011).

Second, the reason why a qualitative research method is being used, is because with a qualitative research underlying dynamic can be better described and that deeper understanding of the research element will be obtained (Eisenhardt, 1989). Instead of the 'if' question that is only addressed with quantitative research, qualitative research also tries to answer the 'why' and 'how' question (Sutton & Austin, 2015). It is uncertain if the three identified motives can be complemented with other motives. If other motives for participation are present at the respondents, it is necessary to check to which extent these motives can be identified. This can only be done with a qualitative study.

3.2 Case selection

The case study for this research is the Brainport Eindhoven ecosystem. Based on two characteristics within the definition of an ecosystem, Brainport Eindhoven has been chosen.

The first characteristic is based on organizations that strive for a shared goal and jointly produce an output (Raab & Kenis, 2009). This shared goal and joint output can be identified within the

Brainport ecosystem. Within the ecosystem there is a form of orchestration, in form of an overarching foundation. This overarching foundation fulfills the shared goal. Within Brainport Eindhoven, the goal is to be a technology region where companies, governments and educational institutes actively work together on a better future (Brainport, N.D.). In line with the definition of a business ecosystem in the previous chapter it can be concluded that Brainport Eindhoven fits the research goal and objective.

The second characteristic is based on the breadth of an ecosystem, in the form of different business, organizations and institutions that are present within in ecosystem (Aarikka-Stenroos & Ritala, 2017; Raab & Kenis, 2009). Brainport is not only a collaboration between companies with a profit motive, but other organizations and institutions also participate within Brainport. Examples of different institutions and organizations are the Technical University of Eindhoven, multiple government agencies such as the municipalities of Eindhoven and the province Noord-Brabant and an overarching foundation called Brainport Development (Brainport, N.D.). With these different backgrounds the case study is in some way similar to the case study of the World Expo 2015 where multiple forms of stakeholder groups were engaged (Pera et al., 2016). The difference is then the purpose and the time frame of the ecosystems.

The third and last reason does not focus on any characteristics but is based on the ease of obtaining data. There are thus practical reasons to look into Brainport Eindhoven. Due to multiple contacts at companies and governments participating in Brainport Eindhoven data could be obtained easier.

3.3 Data collection

In this paragraph the process of data collection will be discussed. According to Bleijenbergh (2015), data can be extracted from multiple sources. These are persons, documents, social situations and the media. For this research three sources will be used to conduct data from. These are documents, media and persons. The data collection has been done in two steps.

The first step in the data collection process was desk research. This has been done to get a better overview of the ecosystem and the main actors within the ecosystem. Documents, the media and persons were used to get this better overview of Brainport Eindhoven. The document most often consulted was the Brainport Nationale Actieagenda. With this document insight was

provided into the different actors. This is necessary because otherwise a possibly relevant group of actors could be left out of the followed interview. If this would happen, the internal validity will be lowered (Bleijenbergh, 2015; Vennix, 2011). More insight into the important actors and the complexity of the ecosystems was gained with two conversations. One conversation was with someone working for the Dutch Government, the second respondent worked for a SME in the Brainport Region. Because these short conversations where for exploratory reasons only, they were not recorded and transcribed. Therefore, they are not included in the appendix.

The second step was conducting interviews with different actors active within Brainport Eindhoven. Because face-to-face interviews were not possible due to the corona crisis, all the interviews were conducted with help of electronic applications such as Skype, Microsoft Teams or Zoom. According to the four interview techniques described by Opdenakker (2006), this will not lead to a lower validity. Face-to-face interviews with synchronous time and location lead to the highest validity, because in that way information can also be extracted through social cues such as voice, intonation and body language. Even though the location is not the same when an interview is being held through Skype, social cues can still be extracted because there is a video connection. Intonation and facial expressions, for example, can still be observed. Therefore, electronic conducted interviews with video connection does not lead to a lower validity.

Interviews were held together with another researcher. This has been done because both studies were complementary for multiple reasons. First, both studies focused on Brainport Eindhoven as a case study. Therefore, respondents can be obtained through the network of both researchers. This made it on the one hand easier to get in contact with respondents. On the other hand, the variety of respondents were larger because the personal networks of both interviewers were complementary. The first respondents were found within the network of the interviewers itself. Respondents for interviews later in the interview trajectory were found using the snowball method. Within the snowball method respondents were obtained using the network of an initial respondent (Bleijenbergh, 2015). Second, both studies focused on collaboration within ecosystems but had a slightly different view towards collaboration. This study is focusing on motives to participate in an ecosystem and if the participation is influenced by how organizations experience the collaboration. The other study focused on collaboration within an ecosystem, and if the ecosystem itself can be managed through collaboration.

A total of 15 respondents were consulted in 14 interviews. They were working for different types of organizations, which all participated actively within the Brainport ecosystem. Because these respondents were working for different types of organizations, it is assumed that the total view will be complete. In the following table an overview of respondents is provided. Roughly half of the respondents were working as managers within their organization. The other half was working at board level or used to work at board level within the organizations. A note that has to be made is that due to the complexity of the network stakeholder groups are interlinked. One *Original Equipment Manufacturer* can also be identified as a *First-Tier supplier* and vice versa. In addition, most of the organizations interviewed are participating in the overarching organization or have some link with the *Start-up Accelerator*. This complexity is inherent to the Brainport ecosystem.

Stakeholder group	Number of respondents
Original Equipment Manufacturer	3
First-Tier supplier	3
Governmental organization	2
Overarching organizations	1
Start-up (accelerator/venture builder/CEO)	2
Self-employed consultant within Brainport/High tech	2
Other	2

Table 1. Respondents divided to category

The development of these questions was based on the described theory in the second chapter. In the table below the operationalization of the central concepts is depicted. Instructions and possible sub questions, including the questions of the other study, can be found within the appendix.

Central concept	Question
Motivation	Why is your organization participating in Brainport?
	What are the main possible advantages that occur from an active participation in Brainport?
Willingness	How does the co-creation process take place for your organization? And how important is the co-creation process for your organization?

Perceived commitment of other organizations	In what way is it for your organization important that other organizations contribute to the co-creation process?
	What is your view on how other organizations are contributing to the co-creation process? And does this influence your own willingness to participate?

Table 2. Central concepts and questions

Through the interviews data was extracted not only by asking the above standing questions. Questions asked for the other study are also used to gather data from. These questions mainly focused on collaborations within the ecosystem and about the orchestration of the ecosystem. Topics were for example a possible infrastructure, the identification of shared opportunities and how relationships are being managed. Throughout the interview respondents came up with valuable information in various ways. For example, different motives were put forward without labeling it as a motive. When being asked about collaborations, the perceived commitment of other organizations was mentioned indirectly. Or for instance, when being asked about the strategy towards the ecosystem, organizations spoke about the dependence of the ecosystem as well. With all the questions asked, data can be extracted in various ways.

3.4 Data analysis

Coding in this study is taking place both inductive as well as deductive. Within the data, there will be checked if the earlier mentioned propositions can be identified. This is the deductive part of this study. Deductive theory is focusing on proving or disapproving existing theory. The deductive part of this study is to check if the motives described by Pera et al. (2016) can be identified within the data, as well as the willingness to engage in co-creation and the perceived commitment of other organizations. In contrast, inductive research is focusing on finding new theory (Vennix, 2011). This inductive part is then focused on finding additional motives that organizations have to engage in the co-creation process in the Brainport ecosystem. Coding is done differently for both ways of doing research (Elliott & Higgins, 2012).

Coding for deductive gathered data is different than coding for inductive gathered data. Because deductive research is based on existing theory, the codes can be conducted from this theory (Bleijenbergh, 2015). For inductive gathered data inductive coding is necessary. Inductive

coding means that codes will be addressed to relevant fragments of the data. This needs to be done in three steps. The first step is *open coding*. This is an interpretative process in where raw data is broken down analytically. These codes are then compared with other codes to look for similarities or differences. This will lead to the second step, namely *axial coding.* Within axial coding, there will be searched for relationship between codes and assigned to categories. The third and last step is called *selective coding.* In this step all categories are unified around a core category which represents the central phenomenon of the study (Corbin & Strauss, 1990). Because inductive coding is based on existing theory, this part has a high level of reliability and validity. This is because it is based on existing theory, which already has been proven. The aspect of validity and reliability is different for inductive research.

3.5 Validity and reliability

Validity and reliability are two measurement mechanisms to identify if a study has been conducted in the right way, in order to be valuable in the academic field. Validity is focused on the design of the study, in where reliability is focused on the results of the study (Hair, 2019). A high validity means that the study has been conducted in such a way that what has been measured is sufficient to answer the research question. With a high reliability, the same results will be generated when the study is reproduced under the same conditions. It is thus also based on the consistency of the measures (Vennix, 2011).

Different measures were taken into account to keep both the validity as high as possible. First of all, the research method, a qualitative case study, is the same as in the original study of Pera et al. (2016). This enlarges the validity of the study. Additionally, the question about motives in this study were based on the questions in the study by Pera et al. (2016). Second, respondents were working as managers or in boards of the organizations. This increases the validity, because they were responsible for or working actively in executing an organizations strategy, including the strategy towards the ecosystem. Third, construct validity is the validity of the operationalization of the central variables (Vennix, 2011). The variables are based on existing research, which is necessary to keep the validity as high as possible. Additionally, inductive gathered data has been coded through the well-known process for grounded theory described by Corbin and Strauss (1990). This enlarges the construct validity as well. Fourth, because two interviews were held in advance and desk research was conducted, a clear view of the actors

participating in the ecosystem was created in advance. Therefore all these different actors were interviewed, which increases the validity of the study as well.

Several elements were taken into account to keep the reliability as high as possible as well. First, for all respondents the interview guide was followed. Therefore all the interviews proceeded in a similar way. Second, the interviews that were conducted later gave provided similar data then the earlier conducted interviews.

Chapter 4. Results

In this chapter the main results will be analyzed and presented. Before the analysis of the dependent and independent variables will be executed, it will be explained how the co-creation process is taking place as well as the different roles organizations have in this process. Second, the focus will be on the motives that organizations have to participate in an ecosystem. There will both be checked if the pre-identified motives are present in the Brainport ecosystem, as well as if other motives can be identified as well. Then, the analysis will further zoom into the willingness to engage in value co-creation. There will be concentrated on the described motives and if these motives have an influence on the willingness to engage in the co-creation process in the ecosystem. As a fourth and final part there will be looked into the perceived commitment of other organizations, and if this is affecting an organization own willingness to engage in the co-creation process.

As explained by multiple respondents, the co-creation process in the ecosystem follows a specific course. Due to the history of the Ecosystem, Original Equipment Manufacturers (OEM's) are outsourcing the development of small modules to suppliers or subcontractors. The design, development, R&D and the sales and aftersales are being kept under supervision of the OEM's. These OEM's are thus the end producer of a product. As a result, there is a huge group of suppliers. This is the second group. Thirdly, there are other organizations which do not directly contribute to a specific product, but contribute to the ecosystem itself. They have a supporting role. Examples of organizations fitting this role are education- and research institutions, (semi)-governmental organizations or network organizations. Startups form the fourth and last role, because they do make a product themselves, but do not have the influence in the ecosystem which bigger OEM's do have. Because all these different roles operate in a different way and have different goals, this could be from influence on the dependent and independent variables in this study. Therefore, the results are set out towards these different roles.

4.1 Motives to engage in value co-creation

In this part the motives to engage in value co-creation will be described. There will both be a focus on the presence of motives, as well as a focus on how these motives lead to value co-creation.

4.1.1 Relationship motives

Within this study, relationship motives are operationalized both in terms of creation and enlargement of a network of an organization, as well as the work, orders and partnerships in any form that arise from being present in the ecosystem. It can be concluded that relationship motives can be identified within all the respondents. However, there is a difference in degree of the presence of these motives. Most of these differences can be traced back towards the role of the different actors. Additionally, the difference in presence and the different roles of organization have an impact on how a motive is executed. It is especially startups which benefit from a large network, and therefore it are those startups that was commented a lot about by other organizations. A statement from two OEM's about how this the relationship motive is executed for example based on startups.

"There are many examples of startups we help, and where they receive the help they need. Because people see how useful it is or that they just like to help them. Most of the time they do not get paid anything because they invest their own time in it. Very often this comes from someone who knows both and makes that connection." (1:51)

"Sometimes you see, there is a very small company and it needs something, and they will search very actively for access to facilities or knowledge. That depends very strong on… On… Sometimes these people worked for Philips or ASML and therefore still have some form of personal connection with that kind of stuff. (3:125)

Additionally, a very similar outcome for this motive can be identified within suppliers as well. The following statement has been made by a supplier.

"We have a lot of contact with the startup community. Also because we do the development, product development more specifically. Startups work more on a research-based principle. They built something that works and then they think they have a product. But the step from there towards a product which is producible in a factory with the same quality, life span and these things, that is a big step. That is what I call product development. We can cooperate perfectly with startups." (3:182).

When the focus is shifted towards small startups, relationship motives can be identified, but the focus of these smaller organizations is not only on the extension or creation of a network to get clients from. In contrast to the larger organizations, startups also create a network to help them.

"For example, I am part of coalition of startups. That is a group of 14 CEO's which meets ones every few months. If I have a problem, I just text them and get some response. That is very specific for medical technology. (...) It is that network which is useful. For example, we share CV's, we share vacancies. If someone had a few good candidates for an engineer and he has chosen someone, maybe another one suits someone else. (...) Or we talk about new medical regulations, how to deal with these new regulations." (3:339, 3:341 & 3:342).

These quotes are all based on the relationship of startups with the rest of the ecosystem. Suppliers and OEM's have a relationship as well, but that relationship is based on project-based working or supplying modules to an OEM. A supplier and consultancy firm stated this about their relationship with an OEM.

"The larger system-suppliers are also some clients of us. (...) They have a very strong connection with that OEM in supplying their products, but in the end, our connection is just as strong because we are designing for the OEM within their own working 'environment'. When we design something, the supplier gets the exact specs of the OEM to make sure they know how to produce it." (3:52 &3:53).

Additionally, when an organization is active within the ecosystem it gets easier to find new partners. This is because within the ecosystem networking and relationship building is getting facilitated.

"They organize Brainport meets Brainport two or three times a year. And everyone gets an invitation to that. And there they tell you what they are doing there currently. All kind of sub-organizations are there as well, for example an important sub-organization as Brainport Industries." (3:372)

In conclusion, organizations have a relationship motive because they expect a benefit from the creation or extension of its network. For larger organizations the creation or extension of their

network is mainly focused on finding clients or partners to cooperate. For smaller organizations a relationship motive is focused on extension of the network, in order to find organizations which can help them overcoming difficulties. Multiple respondents also identified the presence of networking-meetings and events, in order to encourage organizations to extent and maintain their network.

4.1.2 Experimentation motives

Within the Brainport Ecosystem, experimentation motives were identified within all the pre-described roles. Experimentation motives are based on the possibility of innovation with other actors within the ecosystem. An actor can contribute in innovation in multiple ways. For a startup, producing an innovative product is the company's main goal. Larger OEM's contribute to this innovation process in a different way. For example by adding resources, knowledge or the opening up of specific facilities to such a startup. A former employee of an OEM mentioned this about the role of an OEM and other supporting organizations by opening up facilities or adding capabilities.

"Access to capabilities, access to talent, to facilities, for example a cleanroom at Philips. There are technologies that can only be exploited when huge investments are made. These are most of the time too big for a small startup. It helps when you then have access to sophisticated cleanroom technology from ASML, the high-tech campus or the Technical University." (3:119)

A respondent working for a startup mentioned that this accessibility of knowledge is an asset for the region. This knowledge and the culture of startups in the region is something that helps innovative startups in the region, and triggers startups to settle in the Brainport region.

"Well, Eindhoven is the Smartest Kilometer on Earth. You can simply say that this region is therefore called Brainport. That started with Philips at the past and you can see very clearly what they did the last years. There were lots of spin-outs from both knowledge industry as well as manufacturing industry." (3:334).

Suppliers have an experimentation motive as well. At suppliers this motive is executed both in making knowledge and facilities available for others, as well as making use of knowledge and

facilities of others. Additionally, suppliers actively work together with other organizations for a longer period, to maintain their relationship and innovate together. A respondent working for a supplier stated this about innovation in the ecosystem.

"There is real feeding ground to share knowledge. It gets stimulated as well, there are multiple initiatives for that. (...) There is so much knowledge and expertise in the region. You don't have to possess everything in the region. It is accessible as well. So uhh.. It is quite easy to organize all your wishes in a project, by adding external employees. (...) There are thus a lot of possibilities, and we make use of that quite often. (...) We got around 10 or 15 suppliers, which we can label as main partners. These are not just clients, but real partnerships. We look at the future together. That goes way further than just sending an order". (3:67, 3:68 & 3:69).

The organizational goal of supporting organizations is not based on selling a product, but on a flourishing ecosystem by for example taking care of preconditions or investing in innovative projects. By investing in innovative projects, it can be concluded that supporting organizations also have an experimentation motive.

It can be concluded that most organizations have an experimentation motive. It can also be concluded that there is a difference in how organizations with different roles contribute to this innovation process. Larger organizations contribute by adding knowledge and the grant of facilities. Smaller organizations contribute by making use of these knowledge and facilities to come up with innovative products or innovative solutions.

4.1.3 Reputation enhancement motives

As a last motive that was identified within previous studies, reputation enhancement motives were mentioned. It is assumed that organizations participate in an ecosystem because of the reputation of the ecosystem improves its own reputation. It can be concluded that reputation enhancement motives can be identified at some actors within the ecosystem. Additionally, the role of the actor has then an influence on the presence of the motive, as well as on how this motive leads to specific actions. At the OEM's this reputation enhancement motive can be identified, but these organizations are currently more focusing on the increasement of the reputation. In contrast, the startups and suppliers do contribute intentionally to this increasing

of the reputation, but do benefit in the end. The supporting organizations have a well-functioning ecosystem as its main goal, and they therefore benefit from a high reputation.

For the OEM's this leads to a specific form of action. The branding of the Brainport Ecosystem in a specific way is how the OEM's try to improve the image of the ecosystem. They do this for example by sponsoring PSV together with a few OEM's or other bigger organizations based in the region. PSV is the football club from Eindhoven, playing both in the highest Dutch football division as well as the Europa League.

"Yes, it is all branding. PSV has a huge international appearance. Football in general has a huge appearance as well. If you can connect these two in multiple ways, that has a very positive outcome for the whole region I think". (3.170)

About this branding the following has been stated by another OEM:

"The branding is very important, that association, because it works. On the one hand, you have the reputation of all those huge companies. (...) On all different ways you need to check if you can feed the reputation of Brainport with all the reputations of the companies itself. (...) The fact that huge organizations such as organization X and Y working together on themes on the regional ecosystem such as attracting talent, housing this talent, it strengthens the whole cluster." (3:116)

This sponsorship has as a main outcome of a higher reputation. It is assumed that with this higher reputation the acquisition of talent can be done easier and that a support base in the region is created.

For the smaller suppliers a sponsorship is not an option. Despite that, they benefit from the sponsorship al well, because the larger OEM's do not sponsor with their own names but with the name of Brainport Eindhoven. On the other hand, they could use the name of the ecosystem as well. A respondent working for a supplier stated this:

"I'll give you two examples. First, a personal friend of me has a high tech scale up. When he launches a new product on the world market he also mentions that it is developed and

produced in a region where other similar products are produced by ASML and Phillips. (...) Second, for organizations it is difficult to get young talents. They choose the region where they want to work as well. It helps if the region has a positive image. It is attractive for talent." (3:110)

It can thus be concluded that all organizations benefit from a higher reputation, but that only some organizations contribute to it. It is therefore questionable if the reputation enhancement motive is a decisive motive for smaller organizations, or that they are even aware of the existence of this motive. This information was not obtained within this study.

4.1.4 Other motives to engage in value co-creation

Within this study there was a focus on testing if there were other than the beforementioned motives present within organizations that are situated in the Brainport ecosystem. Two more motives were identified within this study. First, there is the motive which is focused on developing a sustainable ecosystem. Second, there is a helping motive. For both motives the background will be shortly described and how it is executed within the ecosystem.

4.1.4.1 Ecosystem sustainability motive

The first motive that has been found is labeled as the ecosystem sustainability motive. This motive is based on an active participation in projects within the ecosystem, in order to further develop the ecosystem and make it more sustainable for the future. These organizations expect that they will benefit in some way when the ecosystem is flourishing. Organizations feel this can only be done when certain preconditions are taken into account and therefore the ecosystem is futureproof. This is done in several ways. An OEM for example stated: *"One of our board members also has a seat in the board of Brainport and those men come together once in a while to discuss how to improve the region and the world" (1:2).* This is a very simple quote which states explicitly that these OEM wants to improve the ecosystem.

A respondent working for an OEM stated the following about the development of the ecosystem:

"Well, we faced a lot of shared problems in the ecosystem. We were working together for a long time already with multiple companies, but focused on R&D. (...) Later, we saw that

we needed to work together on preconditions. (…) First, that was based on talent. We just had a need for technical talent. You have to find that somewhere and then you just work together to find that somewhere. And, it was about making arrangements with each other, regional and national. Infrastructure is very important, the connection to Germany, Belgium and Brussels. This connection was lacking what is happening in the west. Or working together for a pleasant working and living climate. This can vary from housing, to an international school and a good sports and culture climate." (3.260)

These preconditions form the base for this motive. The development of the ecosystem is partly based on working together on improving these preconditions. According to multiple respondents the base for this motive lays in the past. A respondent working for a supporting (semi)-governmental organization, focused on these earlier outlined preconditions, stated that the improvement of the preconditions formed the base of the formal identity behind the ecosystem.

"Philips and the mayor of Eindhoven have met and told each other: 'Come on! We need to join forces. And we should not let thing fall apart.' That attitude that we need to do it together, that is that we really do it together. The collaboration between private and public here in the region, you can state that these two finds each other very easily." (3:5)

In conclusion, there is a motive to further develop the Brainport ecosystem in order to keep it sustainable. Organizations assume they benefit, now and in the future, from a highly effective and sustainable futureproof ecosystem. It can be concluded that this motive is only applicable to larger and supporting organizations. Small suppliers and startups do not have such a motive, because they do not possess the resources to invest in such an ecosystem. However, small organizations do benefit from a highly effective and futureproof ecosystem.

4.1.4.2 Helping motive

As a last motive that was identified within the respondents was a helping motive. This motive is slightly similar to the earlier described motive to develop the ecosystem. The helping motive is based on helping another organization, without directly benefit from it. It is expected that in the future an organization will benefit in some way, or that other will help the organization as well when needed. Three excellent examples can be provided of this.

"Well, on a Sunday afternoon Prodrive was on fire. And guess what happened. A group of bigger companies made sure Prodrive will get the help they need immediately, in any possible way. Of course, they have some form of benefit because they know the ecosystem itself is important for them. (...) Links like this are extremely important. If you are an organization and you want to make use of this, the advice would be that you should just participate in the ecosystem. And uhh.. Make sure you will be part of it. Make sure you will be a supplier." (3:328)

"I was a technology mentor for a startup quite a long time ago, when I was working for an OEM'. Later, I moved to an engineering company. (...) There were some guys which had a lot of knowledge from robotics. So I told my boss that I wanted some hours on a Friday afternoon from those guys. They can advise those startups. But, I also told him. You should see this as a possible investment. It are startups, they do not have any cash. This could be some form of business development. Well.. These hours are non-billable, so my boss was immediately looking at the cashflow. (...) But I told him, just let me go (...) and in the end you see your business card moving up in the pile. (...) It is a little bit a grey area, because you are not a mentor for your own business. (...) After a while, that startup did had work, they found their first investor, and we send two of our guys to them. (3:225)

"We have a startup officer, which is talking to all those startups, who knows that is important. Well, for example, in times of the Coronavirus, businesses were getting help from the government, but based on what they earned last year. A startup did not make any cash last year, but they do have the costs now. With our help, we made sure that the bigger companies in the region provided loans to those startups, without any interest. (3:326).

What can be concluded out of these three examples is that most organizations play some role in this helping motive. It depends on the role an organization plays in the ecosystem if it is really contributing with helping another organization, or that is receiving help.

All the help an organization is giving without directly benefit from it, is based on the same outcome. An organization assumes that at some point it receives something in return. This something could be that it receives help from other organizations when needed, that it could

benefit in terms of a new client, or that in some way a bigger company is depending on the ecosystem and the flourishment the smaller organizations. Nevertheless, it is for all organizations unsure what, how and if they receive something in return.

The roots of both the helping motive, as well as the motive of organizations to develop the ecosystem, can be traced back to a certain 'DNA' that can be found in the ecosystem. Multiple respondents mentioned this specific DNA that all organizations and employees have in the Brainport Ecosystem. Because Philips forms the foundations for the ecosystem and lots of organizations, respondents call this the Philips DNA.

In the following table, an overview of the elaborated motives set out to the roles of an organization is provided. It gives an overview on which motives were identified at the different organizations. It can be concluded that larger organizations which contribute to a product, such as OEM's, possess more motives than smaller suppliers and startups. Supporting organizations are a different category, because these organizations do not contribute to a product directly.

	OEM	**Supplier**	**Startup**	**Supporting organization**
Relationship motive	Relationship motives were identified within OEM's.	Relationship motives were identified within suppliers.	Relationship motives were identified within startups	Relationship motives were identified within supporting organizations
Experimentation motive	Experimentation motives were identified within OEM's.	Experimentation motives were identified within suppliers.	Experimentation motives were identified within startups.	Experimentation motives were identified within supporting organizations.
Reputation motive	Reputation motives were identified within OEM's.	Large suppliers have reputation enhancement motives. Smaller suppliers do **not** have reputation enhancement motives.	Startups acknowledge they benefit from a high reputation, but they do **not** contribute to the enlargement of the reputation.	Some supporting organizations contribute to a higher reputation, but they all acknowledge a high reputation is beneficial.

Ecosystem sustainability motive	Ecosystem sustainability motives were identified within OEM's.	Large suppliers have an ecosystem sustainability motive. Within smaller suppliers ecosystem sustainability motives were **not** identified.	Ecosystem sustainability motives were **not** identified within startups.	Ecosystem sustainability motives were identified within supporting organizations.
Helping motive	Helping motives were identified at OEM's.	Helping motives were identified at suppliers.	Helping motives were identified at startups.	Helping motives were **not** identified at supporting organizations.

Table 3: Overview of the motives to engage in co-creation

4.2 Willingness to co-create

In this paragraph the willingness to co-create will be elaborated on. As elaborated on in the third chapter, the willingness to co-create is operationalized in terms of resource integration. The integration of resources is not only about the investment of money, intellectual property and scarce resources, but also about the investment of time of employees into collaborations or working groups.

It can be concluded that all organizations are willing to engage in the co-creation process. When looking into the resources an organization is investing in the co-creation process, it can be concluded as well that there are differences in how an organization is investing resources into the co-creation process, and to what extent. In the following table an outline of the willingness of the different roles is provided.

Role	**Conclusion**	**Quote**
OEM	OEM's are willing to engage in the co-creation process, based on the level of resource integration. OEM's are cooperating with	*"So, if you ask me the question why we support young tech startups. On the one hand, we think that we will be better off in the future, but on the other hand we feel that*

	suppliers for the day to day operation, as well as with multiple other organizations to further improve the ecosystem.	*it is our social responsibility to do. We have… Well… We are where we are now because of the help we received in the past." (1:9)* *"For larger OEM's it is quite hard to fill in vacancies, but we manage to do so. But only because we can recruit internationally. So uhh… That is not the problem. The problem is at the suppliers. Lately we had a meeting with Dutch Minister of Education, and she asked us about the height of our vacancies. (…) We told her, don't look at us, look at the supply chain." (3:279)*
Supplier	Suppliers are willing to engage in the co-creation process. Suppliers are engaging in the co-creation process by supplying to OEM's, as well as taking seat in working groups within the Brainport Ecosystem (4:11). Larger suppliers are also participating together with OEM's to further improve the ecosystem. (3:158)	*"There are field labs, that's what you can call them. That varies on how to produce a robot to how to connect smarter digitally as an organization. (…) There are multiple employees from us participating in those field labs that also try to bring knowledge" (4:11).* *"We are asked often if we have input. So at Brianport Devopment there are so called strategy sessions. I think some time ago, the new Brainport agenda was released and we had delivered quite some input for that. And if a lobby needs to be set up in The Hague, we are also joining the group." (3:158)*
Startups	Startups are willing to engage in the co-creation process. Because startups have way less resources, it is hard to engage in a lot of co-creation projects.	*"Well… We are…. In some way, we are a small company. A typical startup here has between 3 and 30 employees. You do not have any influence then. If you cooperate, your influence grows. We cooperate with three startups to get our supply at together." (3:345)* *For example, we share a building with a larger engineering company. They have*

		their own workshop, and we just agreed that we could use that workshop, and maybe even employees of them for smaller tasks. And we pay them for every hour we use it. This is a win-win for both, because their employees sometimes do not have anything to do, and we could just walk downstairs and use the workshop". (3:356)
Supporting organization	Supporting organizations are willing to engage in the co-creation process, by adding resources. They do not initiate collaborations, but are asked most of the time to collaborate in projects.	*"I did not knew it existed, but some time ago I heard that Metropoolregio Eindhoven is investing in a project of mine, for online training together with an education institute." (3:188)* *"There needs to be necessity from the market to actually develop something, to develop a location. As a government you should facilitate that. (...) You have money, you have network. And yeah, those companies should focus on that thing they are good in." (3:13)*

Table 4: Willingness to co-create

It can be concluded that all the previously described roles an organization could have in the ecosystem and that were represented in this study, are willing to engage in the co-creation process. It can be concluded as well that there is a difference in how the different organizations invest resources into the co-creation process. OEM's for example outsource the development of products to suppliers, so in that way they both integrate resources and are thus willing to engage in the co-creation process. A contrast can be identified as well. OEM's mention multiple times that they integrate resources into the development of the ecosystem as well. Most of the suppliers are SME's, and they state that they integrate resources into the development as well, but on al lower scale. This is nevertheless not recognized by other the OEM's. There is a perception that suppliers contribute less. An OEM stated the following about this perception.

"I don't know if you talk with someone from Brainport, but they have a hard job. And why is that hard? They have a lot of working groups and committees. And who do you see there,

of course most of the time the larger companies. A small company does not have the time to send people there or invest time or money in. That is difficult sometimes. You see that Brainport is doing its best for the region. But yeah… It is hard to let SME's join." (3:267)

The question remains how the presence or absence of motives affect the willingness to engage in co-creation. In the previous paragraph, a total of five motives were identified. In the following table, these five motives are set out to the roles and willingness to engage in the co-creation process.

Motive	**Conclusion**	**Quote**
Relationship motive	All roles of organizations have a relationship motive. Additionally, they all integrate resources in the co-create process for this relationship motive.	OEM: *"An informal network is growing by itself. But I think you need some form of infrastructure, network dots. (…) People come together in those collaboration platforms. People from all different backgrounds and companies come together to solve problems." (1:53)* Supplier: *"Being in the field labs. Being present in large meetings, making time in my agenda for that. Being on events to meet the right person. We do that very actively." (4:20).* Startup: *"I have a seat in a coalition for startups. That is a group of 14 CEO's who see each other monthly." (3:39)* Supporting organization: *"It starts with bringing organizations together. If the five parties which I just appointed (…) didn't worked together in the first place, this whole campus wasn't even there." (3:16).*

Experimentation motive	All roles of organizations have an experimentation motive. These organizations integrate resources in the co-creation process for this experimentation motive.	OEM and startup: *"Startups come here because it is a very startup-friendly location. (...) Sharing technology, or sharing unique facilities such as a cleanroom" (3:136)* Supplier: *"We do product development for a client. And for instance, some patent rolling out of such a collaboration, then we make agreements on who is the owner". (3:88).* Supporting organization: *"If for example, we miss new technologies to develop new products, then we start looking together with the university, with the government, what are interesting technologies and how can we make sure that the government is investing a lot in that new technology." (3:321).*
Reputation enhancement motive	OEM's and supporting organizations have a reputation enhancement motive. These organizations integrate resources in the co-creation process for this motive. Suppliers and startup acknowledge that a reputation is important, but they do not contribute with resources. Therefore, they are not willing to integrate resources.	OEM: *"It is important to add resources to keep up with the growth of the region. (...) The shirt sponsorship of PSV, that is something that is important." (3:147)* Supporting organization: *"PSV has a very good image. And well, Brainport has quite an abstract image. So we see PSV as a flywheel effect. Make sure the PSV supporter gets to know us, because that is a very hard group to target." (3:330).*
Ecosystem sustainability motive	OEM's, suppliers and supporting organizations have an ecosystem	OEM: *"We were working together with a lot of companies. Decades*

	sustainability motive. These organizations integrate resources in the co-creation process for this motive.	*ago, collaborations were already there. You didn't need Brainport for that. But what you see now, is that initially Brainport looked at the preconditions, to make Brainport more successful. (...) We work together actively to see how we can tackle issues." (2:260)* Supporting organization: *"In the society nowadays, you cannot ask companies to organize the preconditions. That is something for the government. You should let the companies be the entrepreneur." (3:14).*
Helping motive	OEM's, suppliers and startups have a helping motive. These organizations integrate resources in the co-creation process.	OEM: *"We remember very well from the past that we received a lot of help as well. So now we support them." (1:11)* Supplier: *"Bad collaborations are everywhere in Brainport. One of my personal drivers is to make sure that people recognize that we can create more value by doing this efficient. And, I am also convinced that we can increase the happiness of people. Because a good working supply chain is super fun and super nice if we can make it work for once! (3:191)* Startup: *"We are just some CEO's who share their experience. Helping each other when needed to. No formal identity. We don't do shared projects or so. Maybe I'll ask a system architect from someone else*

		to review my internal systems or so." (3:358).

Table 5: Willingness to co-create based on the motives.

It can be concluded that within smaller organizations less motives are present when comparing it to larger organizations. Small organizations have a relationship motive, an experimentation motive and a helping motive, but larger suppliers and OEM's contribute more actively towards the ecosystem sustainability motive. Additionally, when focusing on the helping motive, the startups are receiving help from OEM's and larger suppliers. Within OEM's more motives can be identified, and because they integrate more resources into different co-creation processes, it can be concluded that in general OEM's and large organizations have a higher willingness to engage in the co-creation process. The presence of more motives leads to a higher willingness to engage in value co-creation process.

Out of the interviews a second conclusion can be drawn as well. This is that larger organizations, such as the OEM's, large suppliers and governmental organizations, have more resources. Therefore, they can invest more scarce resources in the co-creation process and is their willingness also higher. Smaller organizations can invest their time, but the budgets of small organizations and startups are not sufficient to join the OEM's and the government in their reputation enhancement motives or the ecosystem sustainability motive.

4.3 The commitment of other organizations

Within this study there has been tried to study the influence of the perceived commitment of others on the willingness to engage in value co-creation. The perceived commitment is based on an initial benefit or an initial harm. This initial benefit in this study is focused on the perception of an organization that others are contributing to the co-creation process. When asked how co-creation was taking place within organizations, respondents focused on their partners as well. In the answers they gave information about the commitment of others can be extracted. Additionally, respondents were asked a general question about other organizations and if free riders' behavior is taking place.

Unfortunately, no clear answer can be provided to the question if the commitment of others has an influence on the own willingness to engage in co-creation. This is because almost every

organization is contributing to the co-creation process. Almost no harm was identified at all. Of course, respondents were asked if free riders' behavior is taking place within the co-creation process. They stated that if it would happen, it would influence their own willingness to engage in the co-creation process.

"You do have the free riders. I sometimes hear… In my past I heard that a lot, but within Brainport I don't see the so-called free riders. You try to… Well, there is a general awareness that we need to do it together. The one works a little harder than the other, but the so-called free riders behavior.. I don't recognize that". (3:314)

What is mentioned multiple times is that if an organization is not willing to engage in co-creation process it will not be asked anymore to join in co-creation and therefore is directed out of the ecosystem.

"You need to invest in it. See, I mean, you need to be present, you need to fulfill your contribution. Well, look. When I stop going to these meetings and gatherings, and thus do not provide input, then I am out. So yes.. You cannot expect a chest full of gold when you do not contribute at all. You need to be actively involved." (3:287).

"What the region is focusing on, is that you participate. So with other words, do not only come and get something, but also give something. I see that most companies are active. Personally speaking, I see quite a good balance. In some working groups or field labs you participate actively, and at some other places you receive something. So I don't see it that bad. It is also quite heavily based on how everything is managed." (4:8).

It can be concluded that within this study only small extent of harm was identified. A clear answer to the initial question can therefore not be provided. Nevertheless, based on several answer of respondents a conclusion can be drawn. Multiple respondents mention that an organization needs to participate actively and that free-riders behavior is not happening because it is not tolerated. If an organization is not participating in the co-creation process, and thus does harm, respondents mention that this does influence their own willingness to co-create with that specific partner. Organizations mention that they will look for other partners.

An addition to the statement that no harm was identified has to be made. The statement assumes that the co-creation process is perfectly managed and that no mistakes are being made. Unfortunately, this is not the fact. Multiple respondents mentioned that partners are committed to the co-creation process, but that the relationship is unequal and that mistakes are made within supply chain collaborations. A respondent who appointed this, stated that he was not less willing to cooperate. Indeed, he was very keen to improve collaborations so no mistakes were made in the future. It was therefore not seen as initial harm, mainly because it was not seen as conscious harm by other organizations. It was mentioned that partners were helpful and willing to improve the relationship.

Chapter 5. Conclusion

In this thesis the following research question is addressed:
How do motives to engage in the co-creation process and the perceived commitment of others affect the willingness to engage in the co-creation process in an ecosystem context?

This research question can be broken down in three sub questions. First, what motives do organizations have to participate in an ecosystem? Second, how do these motives affect the willingness of organizations to engage in the value co-creation process? And third, how is the perceived commitment of other organizations affecting an organization own willingness to engage in the co-creation process? These three sub questions taken together answer the main research question of this study.

First, in literature three motives were identified that organizations have to participate in an ecosystem; relationship motives, experimentation motives and reputation enhancement motives. It can be concluded that all three motives are applicable to the Brainport ecosystem as well. Experimentation and relationship motives are present more prominent than the reputation enhancement motive. It was questioned if these three motives are the only motives applicable to the Brainport ecosystem. It can be concluded that organizations have other motives that leads to an active participation in the Brainport ecosystem as well. This is a *helping motive* and an *ecosystem development motive*. The second sub question focused on the willingness to engage in the value co-creation process, and how the presence or absence of motives is influencing the willingness. It can be concluded that an organization is more willing to engage in value co-creation if more motives are present within an organization. The third sub question focusses on the perceived commitment of other organizations and how this commitment influences the willingness to engage in value co-creation. Unfortunately, this question cannot be answered explicitly. This is because no clear view of the perceived commitment of other organizations can be obtained. All respondents mention that commitment of others is perceived as high. No free riders' behavior was identified. Therefore, the influence of the perceived commitment of others on an organizations own willingness cannot be discussed properly. On the other hand, multiple respondents mentioned that if organization do not cooperate and the perceived commitment is thus low, these organizations are not getting involved in the co-creation process anymore.

The answer on the research question can thus be formulated as follows. First, motives to engage in the co-creation process affects the willingness to engage in the co-creation process because if within organization more motives can be identified, the organization is investing more resources into the co-creation process. Second, it is likely, but unsure, that the willingness to co-create of an organization is not affected by the perceived commitment of other organizations. This is because if another organization is not participating actively, this organization is not getting involved in the co-creation process.

Chapter 6. Discussion

This chapter gives a critical reflection on the conducted research. First, the implications of this research are presented, both the scientific as well as the practical implications. The limitations of this research are presented thereafter. Finally, directions for further research are presented.

6.1 Scientific implications

Multiple scientific implications can be identified within this study. First, this study is a confirmation and extension of the study by Pera et al. (2016). This study elaborates on three motives: relationship motives, experimentation motives and reputation enhancement motives. These motives can be identified in other ecosystems as well. Because the purpose and the time framing of the Brainport ecosystem differ from the World Expo ecosystem, these motives cannot be reproduced literally. The reputation enhancement motive in the Brainport ecosystem is different than the reputation enhancement motive in the World Expo. The World Expo ecosystem already had a high reputation which resulted in organizations participating. The Brainport ecosystem, in contrast, does not have a high reputation yet, but organizations invest resources to enlarge this reputation. Additionally, it was questioned if more motives could be identified within the Brainport ecosystem. This is the fact. An ecosystem sustainability motive and a helping motive were identified within the Brainport Ecosystem and can therefore be added to the motives that an organization could have to participate in the co-creation process in an ecosystem. Secondly, the willingness to engage in the co-creation process is affected by the motives an organization has. The more motives that can be identified within an organization, the higher the willingness to engage in the co-creation process. Additionally, the willingness to engage in the co-creation process as elaborated on by Neghina et al. (2017) can form as a base for the willingness to co-create in a business-to-business perspective as well, because both operationalizations are based on the scarce resources. Thirdly, multiple authors state that the research into motives to engage in ecosystems was based on outcomes of ecosystems (Lin et al., 2010; Pera et al., 2016). This study counters this approach by taking different roles into account. The different role as identified in this study have an impact on the presence of certain motives. Larger organizations possess more motives than smaller organizations, such as suppliers or startups. As a fourth and final implication, according to the social exchange theory the commitment has an influence on other organizations. This is rooted within the reciprocity element of the social exchange theory (Cropanzano et al., 2017; Kessler, 2013). It can be

concluded that reciprocity can be identified within this study as well. When partners do harm, new partners are searched for.

6.2 Practical implications

The practical implications that derive from this study are widespread. These widespread implications can be packed together in two groups. First, a group of practical implications which are within the research focus. Second, a group of implications which are not within the research focus but occurred in interviews multiple times. Within the first group the following practical implications can be identified. First, organizations do not possess all the elaborated-on motives. For example, almost all organizations have a relationship motive. Larger organizations with higher budgets possess several more motives, such as the ecosystem sustainability motive or the reputation enhancement motive. Second, in this study the measurement of the willingness to engage in co-creation is based on the integration of resources. It turns out that large organizations which have more resources also integrate more resources differently than smaller organizations. Large organizations invest resources not only into product development, but also into R&D, the enlargement of the reputation of the ecosystem and the sustainability and being future proof of the ecosystem as well. Therefore, within larger organizations more motives can be observed. For organizations operating in the ecosystem, these two practical implications lead to an important notion. For organizations it is necessary to first identify the other organizations motive and see how an organization own motive and a partners' motive could strengthen each other. This is mainly because motives, as well as the kind of resources that an organization want to integrate in the co-creation process, could differ across organizations. Third, free-riders behavior is not taking place at large scale in the Brainport Ecosystem. Organizations that do not participate and are not committed will not be asked to collaborate anymore. They are thus left out of the co-creation process and organizations solve this problem mutually between themselves. The second group, which exist of implications which do not specifically focus on the research context, exist of the following elements. First, multiple respondents stated that the culture within the ecosystem is very important. This culture is based on the shared identity and has a big influence on collaborations in the ecosystem. The culture in the ecosystem is something to nurture. Some respondents mentioned that people who had worked in the ecosystem for a very long time and helped to build the ecosystem are close to retirement. The shared identity, originating from the time everyone worked for Philips, needs to be passed on towards younger generations. Additionally,

multiple studies has been conducted that link business performance and organizational culture (e.g. Gordon & DiTomaso, 1992; Xenikou & Simosi, 2006), but respondents state that ecosystem culture and performance can be linked as well. Second, the preconditions influence collaborations in the ecosystem. Multiple respondents mentioned that the preconditions in the ecosystem are from such a great influence on the co-creation process that these needs to be maintained and supported. Thirdly, according to Moore (2006) ecosystems are an important element in today's economy. This study identified a motive of organizations for developing the ecosystem and make it sustainable and futureproof by taking preconditions into account. This gives more insights for supporting organizations how to deal with the preconditions to further develop the ecosystem and make it flourish. The fourth and last practical implications which was not part of the research context, respondents working for suppliers mentioned that the partnerships between OEM's and suppliers is not equal. This mostly does not come from unwillingness, but that is how the partnerships emerged over time. Both OEM's and suppliers identify this needs to change, but there is no urgency to change this.

6.3 Limitations

Several limitations can be recognized in this study. First, the snowball method was used to obtain respondents. This is a major limitation because the respondents that were found via the network of an initial respondent are all contributing to the co-creation process in the Brainport Ecosystem. They therefore all have a relationship motive. And as an addition to this limitation, these respondents were all very willing to help and get involved. They were thus willing to engage in the co-creation process. Additionally this can be seen as a form of initial benefit from these respondents towards the first respondents which proposed the later respondents. A narrow view is therefore created. Second, no second- or third tier suppliers were interviewed. Not all suppliers in the whole supply chain are therefore interviewed. It is possible that second- and third tier suppliers have other motives, and less resources to invest in the co-creation process than first tier suppliers. A complete view on the ecosystem has therefore not been created. The reason that no second and third tier suppliers were interviewed arises from the snowball method that was used to obtain respondents. The initial first respondents that were used to obtain more respondents were working for OEM's or a first-tier suppliers. No second- and third tier supplier were found that were willing to cooperate. Thirdly, the willingness to engage in the co-creation process is based on the integration of resources. There was only focused on the if and how question if resources were integrated. The extent of resource integration has not been taken into

account. This is a limitation, because it is acceptable that an organization invest a large proportion of its resources into co-creation, but that the total amount of resources is much lower than other organizations. This could still mean that an organization is very willing to engage in the value co-creation process. When focusing further on this integration of resources, a fourth limitation comes into place. The integration of resources is not only based on the willingness to engage in the co-creation process, but resources can also be integrated because an organization is dependent on collaboration or the ecosystem. Dependency is a result of the resources integration and is therefore not taken into account in this study. This is based on the level of collaboration, because when more collaboration is taking place more resources are getting integrated (Gajda, 2004). When more collaboration is taking place, more resources will be invested in the collaboration and as a result it is then getting more difficult to withdraw invested resources out of the collaboration process (Johanson & Vahlne, 1977).

6.4 Directions for further research

Multiple directions for further research can be identified. First, some new motives were identified in this study. It is plausible that these motives are applicable to other ecosystems as well. This is because these motives derive from the past of the ecosystem, and the ecosystem evolved to what is it nowadays. An important difference between the Brainport Ecosystem and the World Expo, the ecosystem were other motives were derived from initially, is that the World Expo is a temporary event and that the Brainport Ecosystem is a continuous ecosystem. The helping motive and the ecosystem development motive can therefore be applicable to other non-temporary ecosystems as well. Second, in line with the characteristics of a non-temporary ecosystem the article by Möller and Svahn (2006) could be a guide for further research. They look into how so-called business nets, which are similar to ecosystems, renew and emerge. In emerging business nets new activities are set up. Multiple respondents mentioned that new technologies are evident for the ecosystem to survive. It can be interesting to see if in an emerging ecosystem motives change as well. Third, multiple respondents stated that the shared history from Philips was an important aspect in the ecosystem. This shared history forms the basis for collaboration, as well as the helping motive which can be identified. More research into how a common history and a shared identity and culture influences collaboration between organizations in an ecosystem can give new insights. Fourth, another focus on the commitment of others could give more insights in this part of the study. Unfortunately, no clear answer on how the commitment of others influence an organization own willingness can be given. This is

because no clear difference can be identified on the perceived commitment of others. Almost all respondents state that they have the feeling organizations are committed to the ecosystem and the co-creation process and that free riders' behavior is not an issue within Brainport. Contradictory, it is mentioned multiple times that the relationship between an OEM and a supplier is most of the time not on equal relationship. Research into the equality of partnerships can gain more insights instead of the research into an initial commitment or initial harm. A longitudinal study towards this change in behavior, commitment and equality can give more insight in this phenomenon. Fifth, a quantitative study to the integration of resources in the co-creation process can give more insights into the willingness to co-create. It can make it easier to compare organizations with different size, because the proportion of invested resources into the co-creation process can be consulted.

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Appendix A. Interview guideline

In this appendix the guideline for every interview is being elaborated on. All interviews were conducted with this specific guideline taken into account.

Before the interviews were conducted, respondents were contacted. A letter with explanation about the research was sent to the respondents first. In this letter an introduction about the study was provided, the relevance of the study was put forward and topics about the questions were elaborated on. In addition, contact data was added as well, so respondents could contact for more information or for making an appointment for an interview.

When doing the interviews, the following guideline was used. First, respondents were thanked in advance for their time and effort. Second, the question was asked if they had a problem if the interview was recorded. When asking this question it was stated explicitly that it was for academic purpose only and that the transcribed interview was only to look into for the researcher and the supervisor. Before the interview started, some additional information was provided about the research and about us. Some introduction question was asked towards the respondents as well, focusing on the organization the respondent was working for, as well as the role of the respondent in that specific organization. At the end of the interview, an open question was asked if the respondent had anything to add which could be from relevance for the research.

During the interview itself, the first half of the interview focused on the motives to participate in an ecosystem, the second half focused on network orchestration. The questions mentioned in chapter 3 were asked, and clarification was asked if necessary. In addition, if respondents were not mentioning something and there were thoughts that the respondents would not come up with a topic itself, questions were navigated towards a certain topic.

Appendix B. Transcribed interviews

For privacy reasons the transcribed interviews are not attached. The transcribed interviews can be obtained at the researcher.

Appendix C. Codes

For privacy reasons the codes are not attached. The list with codes retrieved from the transcribed interviews can be obtained at the researcher.