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# TRIADS AS A SYSTEM OF COLLABORATION

Faculty of Engineering and  
Natural Sciences  
Master of Science Thesis  
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## ABSTRACT

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The topic of the thesis were triads, its actors and relationships and collaboration between the actors. The starting point for this thesis is the previously made thesis, since the interviews of it have been used as empirical material of this thesis. The purpose of the thesis was to study, by means of the theoretical and the empirical material, how a triad works to boost collaboration between the actors. The target was to confirm the assumed perspective that a triad can act as a system of collaboration.

This thesis is made as a qualitative research that used conceptual study which based on the theoretical sources. The theoretical framework deals with relationships in triads, collaboration and open and closed systems. As the interviews were conducted in the supply network, this thesis focused especially on triads and on its relationships between the buyer and two suppliers.

The empirical part of the thesis was handled as a case study. Empirical research has been used to analyze the interviews to determine whether the interviews supported the views presented on the basis of the theoretical material. Previous made interviews were held on a predetermined target network and both open and closed questions were used. The examination of the interviews was focused on their most important content for each of the six pairs of interviews. After that, the interviews were started to be analyzed more closely and examined whether they were consistent with the content of the theoretical framework.

At the end of the thesis, conclusions and a summary of the results are presented. In particular, the results emphasize that improving communication can increase trust and commitment and create fellowship. Through it, loose actors will become a part of a smaller network – the triad.

Keywords: collaboration, companies' relationships, subcontractors' relationships, triads

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# TIIVISTELMÄ

Emmi Raitio  
Triadit yhteistyöjärjestelmänä  
Tampereen yliopisto  
Johtaminen ja tietotekniikka  
Diplomityö  
Heinäkuu 2019

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Diplomityön aiheena olivat triadit, sen toimijat, sekä toimijoiden väliset suhteet ja yhteistyö. Lähtökohta tälle diplomityölle on syntynyt aiemmin tehdyn tutkimuksen myötä, sillä siinä tehtyjä haastatteluja on käytetty tämän työn empiirisenä aineistona. Diplomityön tarkoituksena oli tutkia teoreettisen ja empiirisen aineiston avulla, miten triadi tehostaa toimijoiden välistä yhteistyötä. Tavoitteena oli vahvistaa oletettua näkökulmaa, että triadi voi toimia yhteistyötä edistävänä järjestelmänä.

Tämä diplomityö on toteutettu laadullisena tutkimuksena, jossa on käytetty käsitteellistä, teorialähteisiin pohjautuvaa, tutkimusta. Teoreettinen viitekehys käsittelee triadissa vallitsevia suhteita, yhteistyötä, sekä avointa ja suljettua systeemiä. Koska haastattelut oli tehty toimitusverkkoon, keskityttiin tässä työssä erityisesti ostajan ja kahden toimittajan muodostamiin triadeihin ja niiden välisiin suhteisiin.

Diplomityön empiirinen osuus käsiteltiin tapaustutkimuksena. Empiiristä tutkimusta on käytetty haastattelujen analysoinnissa, jotta pystyttiin selvittämään, tukivatko haastattelut teoreettisen aineiston pohjalta esitettyjä näkemyksiä. Aiemmin pidetyt haastattelut oli pidetty ennalta määrätulle kohdeverkolle, ja haastattelussa käytetyt kysymykset olivat sekä avoimia että suljettuja. Haastattelujen tarkastelussa nostettiin esiin niiden tärkeimpiä sisältöjä kunkin kuuden haastatteluparin osalta. Sen jälkeen haastatteluja analysoitiin tarkemmin ja tarkasteltiin, löytyikö niistä yhtäläisyyksiä teoreettisen viitekehysten sisältöön.

Diplomityön lopussa esitetään johtopäätökset ja yhteenveto työn tuloksista. Tuloksissa korostetaan erityisesti sitä, että kommunikointia parantamalla voidaan lisätä luottamusta ja sitoutumista, sekä luoda yhteenkuuluvuutta. Sitä kautta irralliset toimijat saadaan osaksi pienempää verkostoa – triadia.

Avainsanat: yhteistyö, yritysten suhteet, alihankkijoiden suhteet, triadit

Tämän julkaisun alkuperäisyys on tarkastettu Turnitin OriginalityCheck –ohjelmalla.

## PREFACE

I would like to thank all those who has supported, encouraged and cheered me in my studies over the years, especially my family. In addition, I would like to thank Rainer Breite, the supervisor of my thesis, for all the help and thoughts in writing.

Writing this thesis, and especially getting it done, raises a variety of emotions – joy, pride and gratitude. However, in the first place, it raises curiosity about what's next. Well, at least a glass of champagne.

Kankaanpää, 23 July 2019

Emmi Raitio

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### APPENDIX A: INTERVIEW QUESTIONS

# 1. INTRODUCTION

Collaboration is a relevant topic in all kind of environment. Although collaboration is clearly understandable, there is no one understandable or prepared practice to create it. Collaboration between actors, people and businesses is based on commonly agreed practices, means and perhaps written agreements to achieve common goals. Collaboration can and must be continuously developed and reviewed. That is why it is especially interesting, there will always be ways to develop it and make it better. It is easy to understand that collaboration is important between people, but it should be obvious that it is important between firms also.

Importance of collaboration and good relationships are obvious in business. Organizations can try to stand-alone but developing its business might demand also connections to other organizations. A concept of collaborative networks which are competing with other networks are called as a supply network. A competitive firm needs other companies to take care of some fields in their business because one firm does not know all things or does not have facility of access to communication technology and information or the ability to expand scope. (Skjott-Larsen et al., 2007) Collaboration expands new views and open new possibilities in the business field.

So, a supply network includes also the relationships of other actors. It has maybe been thought that collaboration between actors can affect negatively to the competition but because of internationalization and technology the world has associated, and a situation has changed. Collaboration is created and thought for example between a buyer and its suppliers, but suppliers who are a client to the same firm do not necessarily collaborate with each other. There is usually only competitive position between suppliers even if they could probably achieve more with collaboration. It is normal that mostly relationships of business are thought first through a dyadic perspective. Mostly because after all the relationships in a network begin with a dyad (Choi and Wu, 2009). Recently relationships and collaboration has risen their heads and a term triad has become more known.

What is the reason that triads have become daily? And in fact, what the triads are and why should it be focused on them? The term triad refers to a shape of a triangle as the triad is often described. In this thesis, the triad is specifically described as a structure of collaboration and interaction between three actors. The triad could also be described relationships between for example three different firms and their impacts on each other. In the triad, these interactions can be described in different ways and between different relationships as will be done later in this thesis.

In a supply network, actors can be together as a system. The system of collaboration means that actors in a supply network strive to make their communication systems compatible with each other and ready for interfirm planning and forecasting. Hence a system of collaboration serves joint platform which is ready for multiple firms along the supply network to work together, coordinate and manage activities for effective demand planning and forecasting and share information. (Kim and Lee, 2010)

There has earlier been studied and written the thesis about business relationships in a buyer-supplier-supplier triad. There has been researched about forming and developing triads in a supply network. After that thesis, now it is time to figure out if the triads can work as a system of collaboration.

## 1.1 Objectives and topic of thesis

Triads are usually thought of as a phenomenon or a structure to outline an interaction and authority relationships between actors or firms. An existence and a necessity of collaboration is also easy to understand but its significance for the relationships in a triad has not really been studied either. An objective of this thesis is therefore set to explore and find out if the triad can be said to work as a system of collaboration. Both theoretical and empirical research are used to obtain this objective. A preconception is that collaboration between actors will increase functionality and relevance of the triad. It could then be concluded that the triad can be said to be a system of collaboration.

This thesis is strictly limited to dealing with the triad, relationships that exist in a triad, collaboration and its importance in a triad. In the thesis, the triad is thought to occur in a supply network. In this thesis, a supply network means a network of common actors or firms that through joint action, seeks to achieve a set goal. The term supply network will not be defined more precisely. In addition, the thesis will not deal with collaboration's systems at a general level, but it will focus on showing the triad as a single system of collaboration. So, the topic of thesis is strictly delimited to figure about the triads and benefits which can be achieved with collaboration in triads.

There have already been made twelve interviews in the Rebus research program (Perho 2015). These interviews will be analyzed so that it is possible to figure out if the theory could be brought to an action. Six of the interviews were held for the suppliers of the exact company. Consequently, empirical research is limited to these interviews, their answers and their analysis. The objective is that an analysis of interviews will promote the thoughts which will be brought up in the theory.

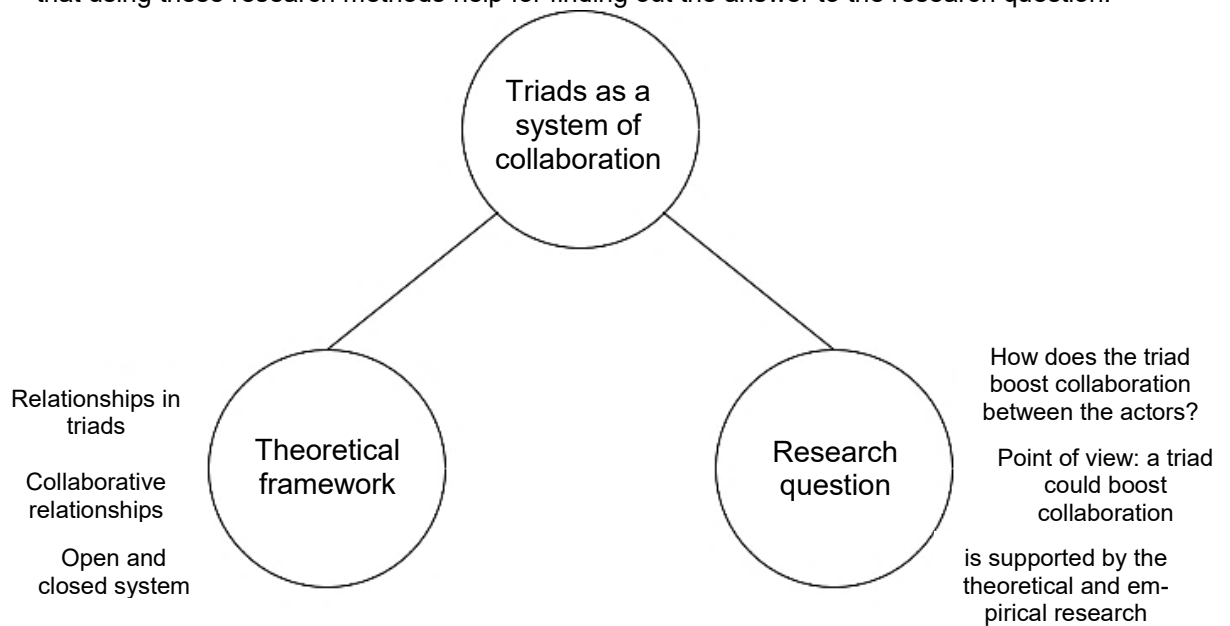
## 1.2 Research question and methods

A research problem is to figure out with theory sources and the interviews how does the triad affects to the actors' collaboration and can the triad be called as a system of collaboration. Based on these issues, the research question is "How does the triad boost collaboration between the actors?". The research question is considered from the point of view of whether the triad boost collaboration. The research question and the theoretical framework of the thesis are presented in Figure 1.

The thesis combines the theoretical and empirical research. The research methods in this thesis are a case and a conceptual study and the interviews. A case study is used in this thesis because it is one which researches to get the answer to specific research question. This demand uses of multiple references which is also an essential characteristic of case study research. Because there will be used also interviews as references in this thesis, it is also a qualitative research. The qualitative research is based on what people have been told or what they have been done (Gillham, 2000). A conceptual study focuses on a theory or a concept that describes or explains the phenomenon which is studied (Conceptual vs. Empirical Research: Which Is Better? - Enago Academy, 2018). There is focused on the concept and theory of triad and collaboration in this thesis and they are going to be used to define the triad as a system of collaboration. As said, the interviews have been made earlier for the Rebus research program (Perho 2015), but they are also important for this thesis. The interviews will give a substantial point of view and will hopefully support the theory. The interviews were kept with open and closed questions. Some of the questions were open, so some of the answer were unofficial. And rest of the questions were closed because they were given a numerical value as an answer (Perho, 2015).

A term validity refers to how well a research method and a research correspond to what is to be clarified. Reliability refers to the repeatability or reliability of the desired phenomenon by the research method used. (Concepts | Tilastokeskus, no date) Relativity in this thesis is relatively

good because the questions which are presented in the interviews are known and reproducible. As the research method is the case study, the conceptual study and the interviews, can be said that using these research methods help for finding out the answer to the research question.



**Figure 1.** *The theoretical framework and the research question of the thesis.*

### 1.3 Structure of thesis

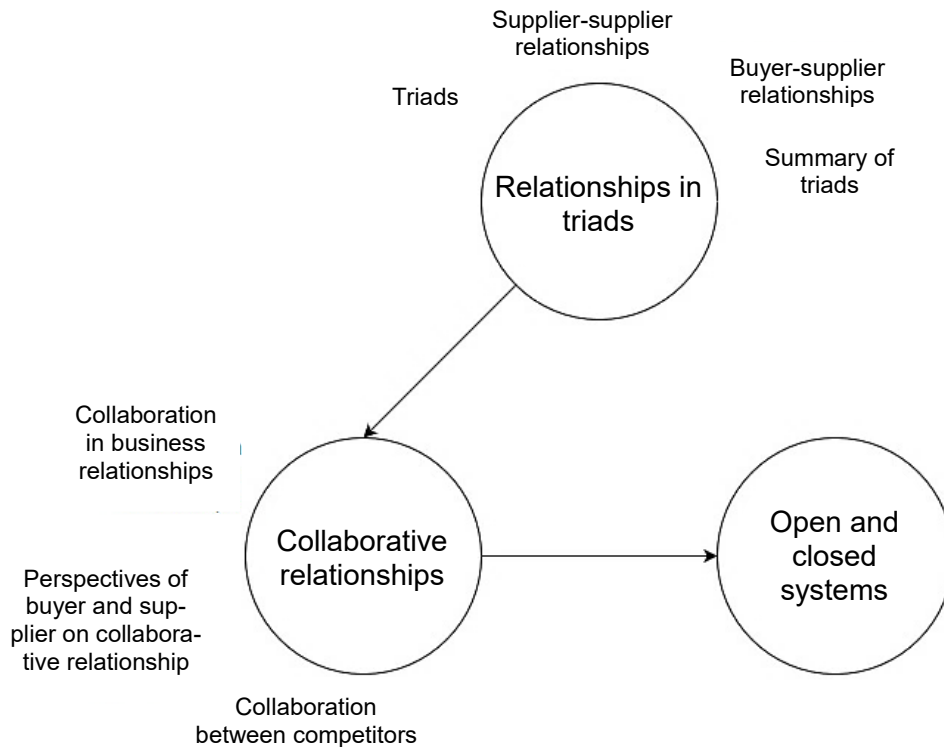
The structure of the thesis is consisting of the theory part, the part where the interviews are introduced and analyzed and the last section where the discussions and conclusions are presented. The theory part consists of the theoretical framework that considers the relationships in triads, collaborative relationships and open and closed systems. The first part of theoretical framework deals with the triad and the relationships that exist there. More specifically, the relationships between suppliers and a buyer will be examined in more detail, as such relationships are also present in the interviews. The second part of the theoretical framework contains collaborative relationships and open and closed system. The part of collaborative relationships tells about the benefits and contents of collaboration in a supply network. And finally, the effect of open and closed systems is introduced. The theoretical review ends with a summary of how the triad boosts collaboration activities.

The fourth chapter consists of empirical research because the interviews are represented, analyzed and used as a material and a method. The analysis of the interviews and the research focuses specifically on the responses received. Based on the answers of the interviews, an aim is to examine the impact of collaboration on maintaining and developing interaction. The fifth chapter combines information from the theoretical part about how the triad can boost collaboration activities and how a buyer and its suppliers see importance and an impact of collaboration in the triad based on the interviews and their results. Most recently in the chapter six exists the conclusion and the validity and the reliability of the thesis are evaluated.



The theoretical framework of this thesis leans mainly to theory sources and the conclusions which can be made based on them. And it leans also to the point of views which will stand up when the interviews will be analyzed. The purpose of the theoretical framework of this thesis is to reach actors of a triad and their relationships in the researched social network. The approach is inductive and the research is resource-oriented (Willberg, 2009). Theoretical sources are mainly scientific articles and publications.

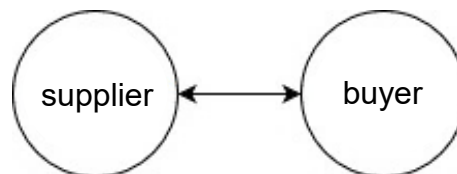
The theoretical framework handles the issues that are presented in Figure 2. The subjects in Figure 2 are used to deal with the relationships in a triad as well as the importance of collaboration, to an enough extent. Before getting to know the theoretical framework, the premise at the beginning of the research is that a triad boosts collaboration between actors.



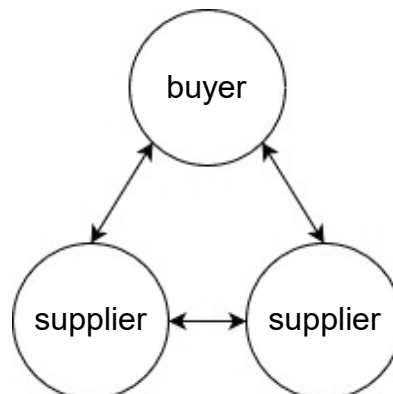
**Figure 2.** The theoretical framework.

## 2. TRIAD CONNECTIONS

Triads are a smallest unit of a network (Bastl et al., 2013). From triads can be observed how a node can affect to a link or how a link can affect to a link. There has generally been a perception that a supply network consists of a network of suppliers and buyers. Therefore, it has been possible to concentrate on the relationships between a buyer and a supplier and between two suppliers, for example. In recent years there has been understood that infact a supplier-supplier relationship and a buyer-supplier relationship are just two pieces of the same puzzle in the triangle of one buyer and two suppliers. In triads there are reviewed three actors, for example one buyer and two suppliers. Through Figure 3 and Figure 4 it is easy to see that triad can be formed of dyads. If in a dyad built with a buyer and a supplier is added one supplier, the dynamic will change. (Choi and Wu, 2009) Triads are therefore transitive. And the arrangements of relationships in a triad impact one another and they move toward to balanced position. (Bastl et al., 2013)



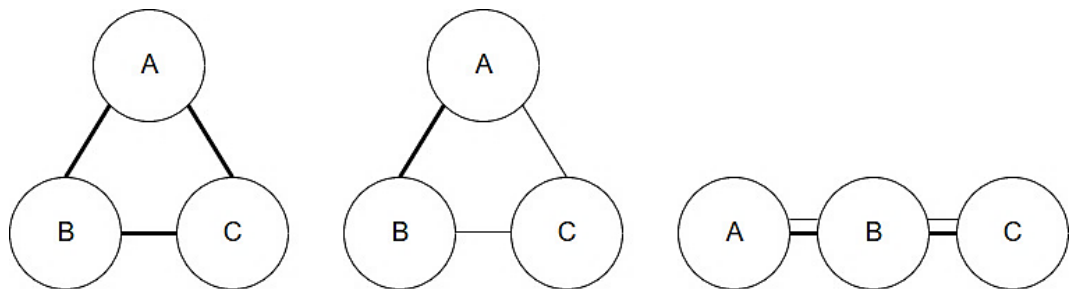
**Figure 3.** A buyer-supplier dyad.



**Figure 4.** A buyer-supplier-supplier triad.

Then a mental leap must be taken also into account. The ultimate difference between a triad and a dyad has been introduced by Georg Simmel. Simmel (1950) used a marriage as an example how relationships change. First there is usually a couple and they form a dyadic relationship. The couple will form a different kind of family if a baby arrives. Then the dyad changes in to the triad and each person in the couple will form a new relationship with the baby. (Choi and Wu, 2009) The same phenomenon can be also seen for example between two best friends. Probably they have done everything together but if one of them meets a new friend to hang out the dyad changes into the triad. And again, the relationships and dynamic will obviously change.

Even though this thesis is focusing on triads that are formed of relationships between a buyer and two suppliers, they are not the only triads that exist. Triads can vary in terms of a shape, a strength of relationships, how the relations influence each other and a way the triad relates to its environment. (Vedel et al., 2016) Triads can also be formed between different actors of a supply network. In fact, three possible configurations can occur in the triads. In the first configuration, one buyer interacts with two suppliers. In the second configuration, the situation is the opposite and one supplier interacts with two buyers. In the third configuration, one supplier interacts with an end customer and an intermediary. (Bastl et al., 2013) And on the other hand, a triad can also be formed inside a firm such as a structural triad. The structural triad can be formed between product development and manufacture as an example. This thesis focuses precisely on a triad between a buyer and two suppliers because the interviews used in here have been done in a project network between them.



**Figure 5.** *The unitary triad, the serial triad and the bridge triad.* (Holma, 2012)

The popularity of triads and their review is partly due to a popularity of outsourced services. All outsourced functions require three actors and that makes triads a useful way of looking at it. As a triad has three players, the strength of the bonds between them can vary. This is also seen in Figure 5. For example, if A is a buyer and B and C are suppliers are all relationships equally strong in the unitary triad. There is clearly one stronger relationship between a buyer and one supplier in the serial triad. And in the bridge triad, a buyer and a supplier have an indirect relationship through one supplier for example. The strong bonds have a higher level of mutuality and nearness than weaker bonds have. The weaker bonds provide access to a further variety of information while the stronger bonds increase the likelihood of sharing delicate information. But it should be noted that depending on the context, any one triad may work in one of these three forms. (Holma, 2012)

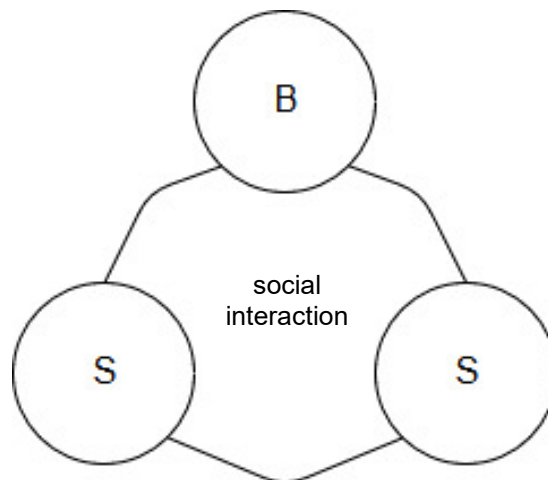
There is a long tradition to the triadic consideration of social relationships (Choi and Wu, 2009). Because of a change of dynamic it is not possible to focus on interaction between suppliers without considering a relationship with a buyer and a supplier. (Choi and Wu, 2009) That is the reason why it is necessary to study relationships on triads before it can be said that do the triad promote the actors' collaboration.

## 2.1 Relationships in triads

Triads consist of three relationships between three actors and the links of which are combined into a triad. The relationships in triads are a bit challenging because for example in a buyer-supplier-supplier triad should suppliers at the same time collaborate and compete while a buyer must manage these relationships between those suppliers. In fact, expressly a buyer has a huge impact of a behavior of suppliers. Triads have been started to study mainly because many buying companies have understood that upstream operations of suppliers will affect to their customers in a downstream. (Wu et al., 2010)

It can be said that a triad is not a central focus. The focus of a triad is most often on the connections and relationships between three actors (Havila et al., 2004). The term connection is used to indicate that something is related or linked. It is also a network phenomenon that describes that a relationship is affected by other relationships or it can affect to another relationships (Vedel, 2016). Three actors of a triad are usually from the same field from a group based on some specific reason. A family has been used as an example earlier when the formation of a dyad as a triad was presented. And a family can be used as an example to compare it to a business relationship. If it is wanted to explore how a family composed of parents and one child works together, all three family members must be considered in the study. If only the relationship between the parents is examined something important is forgotten, namely the influence of child on the relationships between the parents. This idea can also be applied to business relationships. If it is thought about actors of a triad, in this case a buyer and two suppliers, must be looked at the whole in their relationship. The social interaction between them is presented in Figure 6. As noted, the dynamics change when one supplier and its interaction is added to the entity with other members of the triad. (Havila et al., 2004)

The role of triads is different compared to dyads because they have some special features. One characteristic of the relationship between actors in a triad is that each of them acts as a middleman between other two. Correspondingly, a relationship between a buyer and a supplier is influenced by the relationships between two suppliers and between a buyer and another supplier. This does not mean that they should interact at the same time together even though that it would be possible. Because a triad has a different kind of function depending on a firm, in other triads every actor can have a strong interaction with each other. On the other hand, other triad's actors, such as two suppliers, do not necessarily communicate with each other at all. So other triads act as a group and in other triads members act as individuals. (Havila et al., 2004)

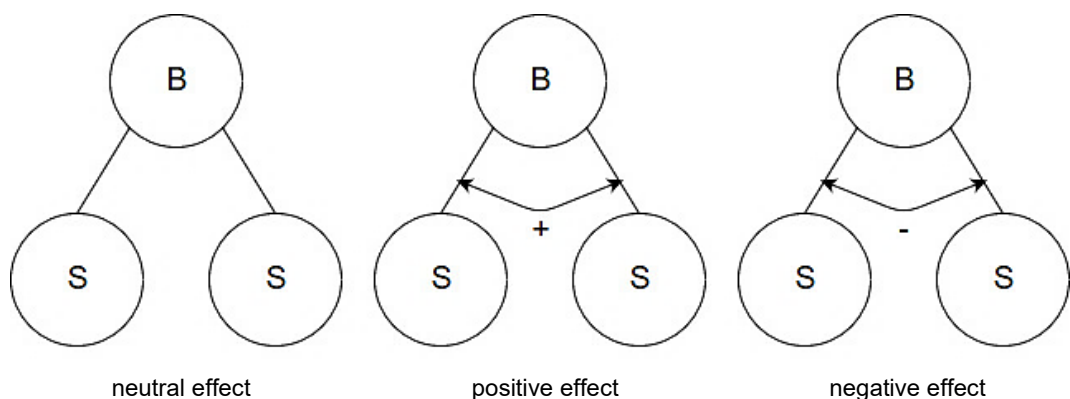


**Figure 6.** A social interaction in a triad. (Havila, Johanson and Thilenius, 2004)

Relationships in triads are important to be analyzed because every larger network can be demonstrated by using only a triad. An effect of a relationship in a triad between two actors can be negative or positive as can be seen in Figure 7 (Anderson et al., 1994). If there is not impact between suppliers in a triad of buyer-supplier-supplier, an existence of supplier 1 is independent from an existence of supplier 2. A positive impact in relationships can be formed by learning or permitting effects. That could be for example a situation where a buyer and a supplier have been developed their activities together and now, they take another supplier into it. On the contrary, a negative impact can be born if a buyer and a supplier exclude the existence of relationship between another supplier and a buyer. The reason may be for example limiting resources. It can be said that in general when there exist two relationships it can affect to other relationships or a relationship can be influenced by others. (Ritter, 2000)

Based on this interconnectedness there has been developed ten cases that can be distinguished in triad. The *neutrality effect* exists when there is not interconnectedness between two suppliers at all. Suppliers work independently only in relation to a buyer, so there is not influence between suppliers. The *assistance effect* exists when experiences made in one buyer-supplier relationship can be used in the other. So, through the existence buyer-supplier relationships, another relationship between a buyer and a supplier is supported without any reverse impact. The negative impact, called as *hindrance effect*, is born when one relationship is prevented through another relationship between suppliers. An opposite for that is the *synergy effect* where both relationships support and even presuppose each other. When both positive and negative impact exist in the same relationships the *lack effect* appears. There is also available a situation where two relationships weak or exclude each other. Each supplier-supplier relationship is competing because firms are limiting their resources, and this is named as the *competition effect*. The *unitary neutrality effect* is formed when relationship between for example two suppliers does not affect to relationships between a buyer and suppliers. That is possible when all three actors in a triad collaborate, develop activities and undertake research but in every relationship a completely different area is covered. In the *initiation effect* a relationship between suppliers is demanded by a buyer company. So, a buyer is introducing suppliers to each other and then a relationship between supplier affects positively to their relationship with a buyer. Even though the relationship between for example a buyer and a supplier can support the suppliers' relationship, it is possible that another relationship between a buyer and a supplier can make it weaken. That kind of relationship is called *by-pass effect*. There is possibility also for *hierarchy effect* when two relationship between a buyer and suppliers can both affect negatively to the relationship between suppliers. (Ritter, 2000)

These ten examples show that relationships can strengthen, control, weaken or interfere with another relationship. These then effects are vital to understanding the profitability of relationships and business markets (Holm et al., 1996). They illustrate also the potential impact of relationships between actors in a triad. (Ritter, 2000) The possibility of positive and negative relationships in a triad has already been presented. These "pros and cons" are discussed in more detail in the next chapter where the balanced theory is described in more detail.



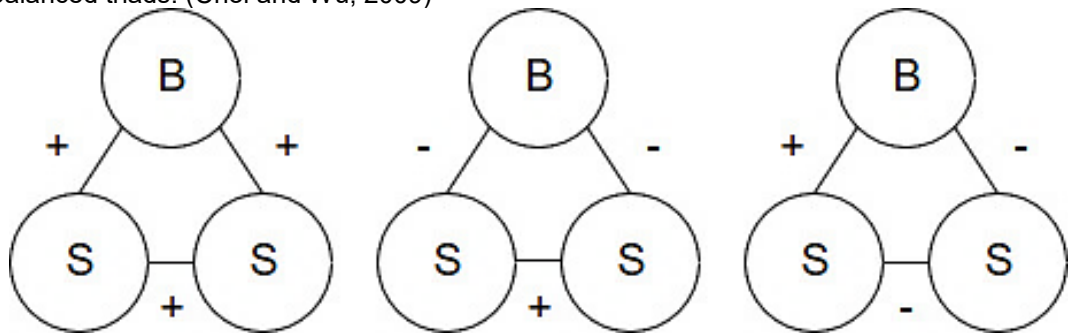
**Figure 7.** The neutral, positive and negative effect on relationships in triad. (Ritter, 2000)

### 2.1.1 Balanced theory

The balanced theory has been used to identify a group's research problem in a social relationship that can be either positive or negative in quality (Hummon and Doreian, 2003). Therefore, the balanced theory has also been applied to triads by examining the importance of one relationship for the balance of the whole. This balanced theory has been represented by researchers who have been focusing on relationships in social groups. And there is offered three reasons to adopt the balanced theory to investigate triads by Choi and Wu. First, one of them is because there has not been established other literature which addresses triads explicitly. Second, the theory has been applied to bigger social societies. And third, buyer-supplier relationships are described very similar way than the balanced theory introduces the relationships. (Choi and Wu, 2009)

In the previous example of couple and friendship introduced, the balance has been reached when everyone has a positive relationship with each other. But for example, an unbalance arises when one of the original friends does not like a new friend and the other one of them likes. In that kind of situation, a tension is occurred in a triad because the new friend is liked and disliked at the same time. Now the triad is unbalanced. The triad will be in balance again if also the other one of ordinary friends would start to hate the new friend also. The best friends will have in that case the common target to dislike and that creates a balance in relationships of triad. So the logic is that the friend of my enemy is my enemy as well as that the enemy of my friend is my enemy (Choi and Wu, 2009).

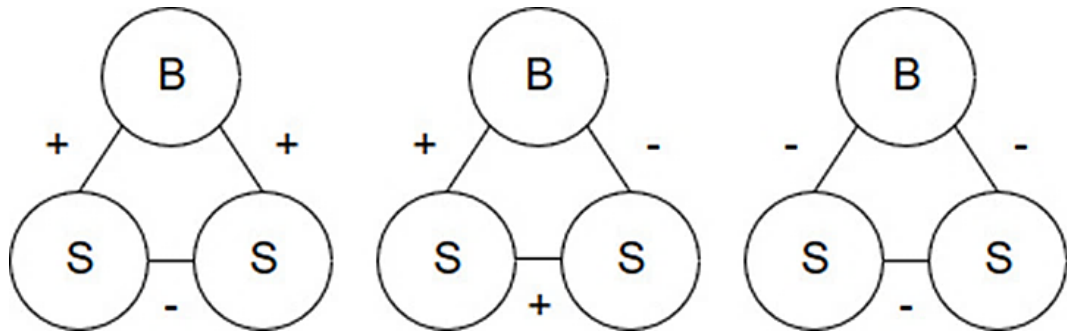
In the balanced or unbalanced triads, the relationships are described with a plus (+) or a minus (-). A minus means incongruous, exit-based relationships which begins from inequity and distrust between two firms (Griffith et al., 2006). And on the other way around, a plus describes voice-based relationship and collaboration between two actors which is based on commitment and trust (Morgan and Hunt, 1994). A bit like in math the balanced triad can be formed of three plus or two minuses and one plus, because two minuses constitutes a plus. Respectively the unbalanced triad is consisted of three minuses or two plus and one minus. And an objective is to balance the unbalanced triads. (Choi and Wu, 2009)



**Figure 8.** Possible balanced triads. (Choi and Wu, 2009)

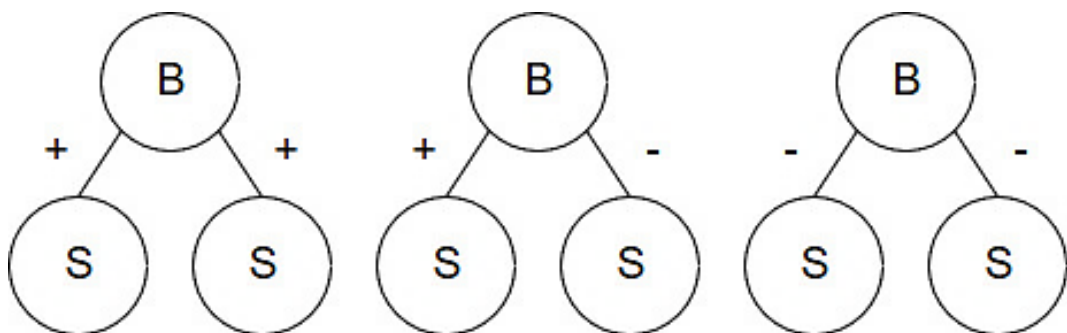
In balanced triads there are steady and equivalent relationships between actors. In Figure 8 there are demonstrated three kind of balanced states. In first of them all relationships are plus signs which means that a buyer has a collaborative relationship with both suppliers in a triad. Usually in that kind of situation suppliers are not doing same business and the suppliers are encouraged to make an asset investment in business of buyer. In second triad of Figure 8, the suppliers have a collaborative relationship between each other, but they have an adversarial relationship with the buyer. To make this possible the suppliers can belong to same business unions or they can have a common history. And that common background has been born before their business relationship with the buyer. (Choi and Wu, 2009) On the other hand, this kind of collaboration between the suppliers can give rise to doubts in the buyer about a tacit agreement between suppliers. In that case, suppliers could be accused of unfair commercial treatment by the buyer (Baker and Faulkner, 1993). The third possibility is represented in the last triad of Figure 8.

In that case the buyer prefers more one supplier than the other one. This triad is in balance despite a popularity of the buyer because the unpopular supplier has a negative relationship with both more popular supplier and the buyer. The buyer can prefer other supplier because of it may have better business opportunities or performance. (Choi and Wu, 2009)



**Figure 9.** Possible unbalanced triads. (Choi and Wu, 2009)

The unbalanced situation in triad brings instability to the actors and is a reflect of inequity (Rossetti and Choi, 2005). In Figure 9, there are demonstrated three kind of unbalanced states. In first of them there is probably quite typical situation when a buyer has a collaborative relationship with both suppliers, but suppliers have an adversarial relationship between each other. In this kind of situation, a relationship of suppliers includes a competitive setting. For a buyer working closely with competing suppliers has benefits because then it has access to expertise and complementary resources of suppliers. In second triad of Figure 9, the relationships between the suppliers and the buyer-another supplier are collaborative. On the other hand, another supplier-buyer relationship adversarial. The adversarial, minus sign, relationship between the supplier and the buyer and a tension of that relationship can put the plus sign supplier in a profitable position. Conceptually, that means that the plus sign supplier can even get more business from the buyer. So, in fact, a leverage of supplier does not come from a production expertise of it instead it comes from being at a right place in right time. Then it comes up a question why the supplier-supplier relationship has positive sign. It can be explained for example that the plus sign supplier thinks that another supplier has received unfair treatment from the buyer. That may cause the plus sign supplier to doubt that one day it will be treated also unfairly. This binds suppliers even more closely to collaboration. The third possibility is represented in the last triad of Figure 9. (Choi and Wu, 2009) Three negative relationships had been formed in one field of industry when the supplier switched to the buyer's lucrative aftersales market. Thus, the buyer had treated the suppliers with an unreasonable cost reduction initiative. (Rossetti and Choi, 2005) So, in that triad all relationships are adversarial. It is obvious that in that kind of situation no one trust each other, and the dynamic is negative (Choi and Wu, 2009).



**Figure 10.** Possible structural hole triads. (Choi and Wu, 2009)

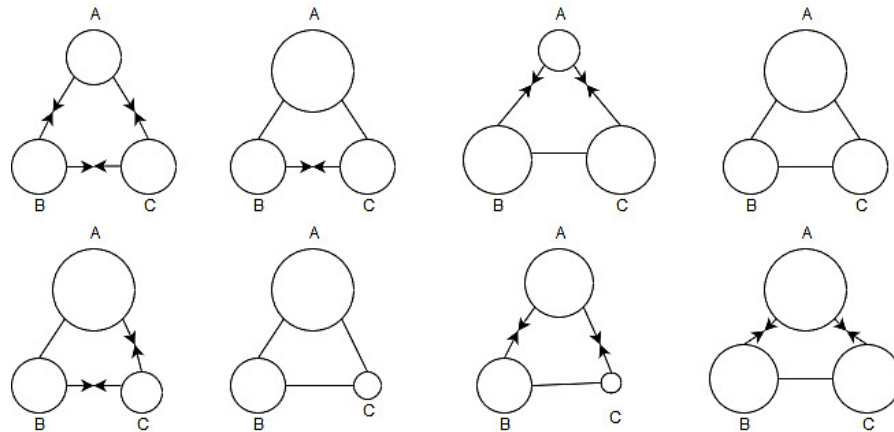
There are also three types of structural hole triads and they are shown in Figure 10. Essential contacts are connected by a structural hole. The structural hole is thus a relationship between two contacts or actors in this case. (Burt, 1995) These kinds of triads are very common in the world of business. Then a buyer preserves relationships between suppliers even though relationships between suppliers do not exist. In the first possibility of a structural hole triad the buyer has collaborative relationships with suppliers. Then the buyer wants to find business opportunities which can be produced with strength and expertise of suppliers. This offers a situation where another supplier is expert at low cost production while another can be professional in product engineering. At the same time the buyer creates a business opportunity for them. In second triad of Figure 10 there is a collaborative relationship with another supplier and buyer. But with another supplier and buyer the relationship is adversarial. This position is possible when the buyer has stated that the plus sign supplier can provide a lower cost production than the minus sign supplier and it has transferred the production from supplier to another. The minus sign supplier is not pleased but it can get stuck in the triad if it is anyway dependent on the buyer for business. The third possibility is represented in the last triad of Figure 10. The buyer may have manipulated a situation so that they cannot even know with whom they are competing against. In that case must the suppliers comply a demand to price cut etc. if buyer requires. So, the buyer has adversarial relationships between both suppliers. After all, competition in the triad and between suppliers is hopeful but it should exist only between the suppliers. (Choi and Wu, 2009)

### 2.1.2 Coalition theory

The coalition theory has been created by Theodore Caplow, who built it based on the thesis of Simmel. Simmel has said that "it does not matter how close a triad may be, because there is always the situation on where two of the three actors consider the third as an intruder". According to him, a triad tends to become a coalition of "two against one". On this basis, Caplow (1956) stated that the initial division of power in the triad affects the formation of certain coalitions. (Bastl et al., 2013) Caplow stated that the generalizations developed in the triad are likely to be suitable for situations where organized groups consist of interactive individuals (Caplow, 1956). And when the first division of power is known, the occurrence of other things of equal value can be predicted. That is, the anticipation of the future results of the coalition would also be possible by taking into account the current differences of the triad. (Bastl et al., 2013)

Originally there were six assumptions and the types that formed from them (Caplow, 1956). In 2013 there has been found four key assumptions related to the coalition theory. First, in a triad is power asymmetry among actors. An actor with more power can control a weaker actor and is also trying to do so. Second, in a triad wants every actor to control other actors. Third, the sum of power of two actors in coalition is equal to the collective power of a coalition. So, power is additive. Fourth, the coalition's formation happens in an existing triadic situation. Considering these assumptions, there are different types of a coalition when three actors appear in a triad. These eight types represent a formation pattern of a coalition and unique distribution of power. They are shown in Figure 11. The size of a circle depicts the power of actors. (Bastl et al., 2013)



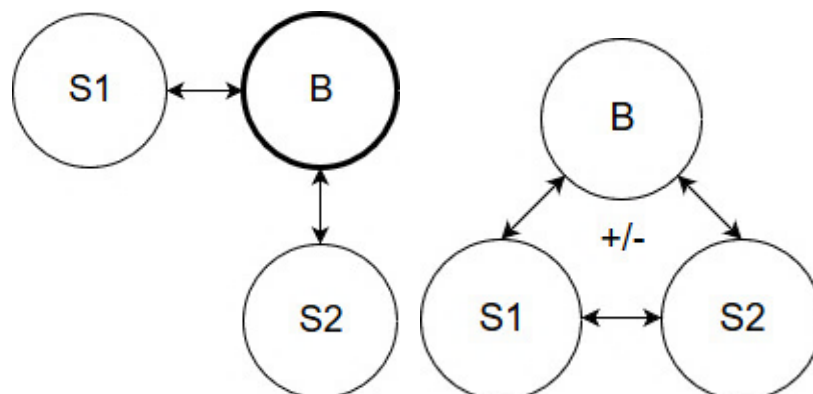


**Figure 11.** Potential coalition arrangement in triads. (Bastl et al., 2013)

### 2.1.3 Triadic relationships’ three forms

The term triadic relationships have introduced in the research in 2017. According to Siltaloppi and Vargo when the role of a third actor as an intermediary in a triad is emphasized, the definitions are overlooked based on some decisive aspects of social dynamics. These become visible in a triad and define human systems. The literature was read, and three perspectives were identified to research of triads. These are called as a brokerage, a coalition and a mediation. (Siltaloppi and Vargo, 2017)

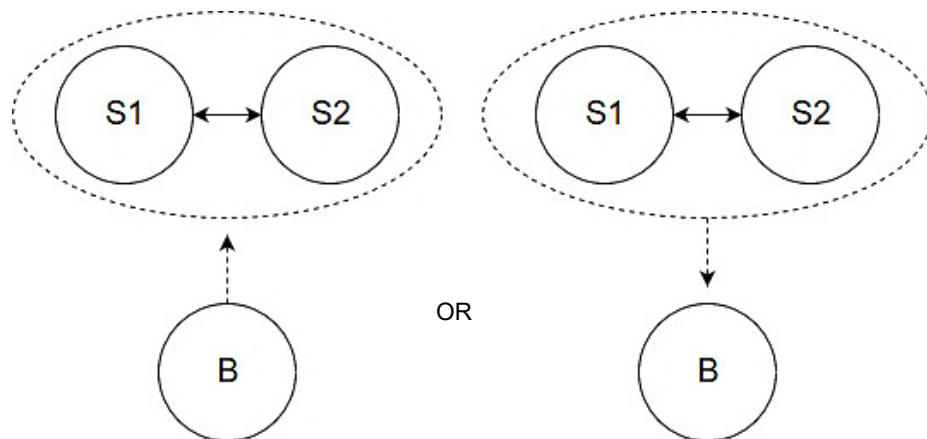
The first form is called brokerage and it is seen in Figure 12. The brokerage is worried with the “behavior by which an actor directs, influences and eases interactions between other actors in a triad”. In this kind of situation one actor, for example a buyer, is a broker between two other actors, for example suppliers. There is seen also second form in Figure 12 which is called coalition. It focuses on the formation and evolution of connections in the three-actor system. It illustrates the process and logic how the relationships in a triad are formed and balanced by actors. The coalition creates a triad that nevertheless considers also the relationships between the actors described in +/- . The third form of a triadic relationship is a mediation in Figure 13. The mediation examines the closure of dyads into triads. (Siltaloppi and Vargo, 2017) It illuminates a variety of mechanisms by which a dyadic relationship is affected or affects by a relationship with a third actor (Anderson et al., 1994).



**Figure 12.** A brokerage relationship and a coalition relationship. (Siltaloppi and Vargo, 2017)

The view of the relationships between the triad and the description of it has changed over the decades, like everything else in the world. Therefore, these three triadic relationships are also highlighted in this thesis. The relationships of this research differ from those presented elsewhere because they do not focus on the structural or relational characteristics of a triad such as closed and open structure. The concept of a triadic relationships emphasizes that the characteristics of a system are due to their relationships and interaction and cannot be reduced to parts. These three forms, the brokerage, the coalition and the mediation, are often inseparable in real-life contexts and closely interrelated. As usual in structure types of a triad, these triadic relationships do not categorize or direct empirical studies. Their relationships are based on social dynamics which emphasizes more humanity. (Siltaloppi and Vargo, 2017)

Triadic relationships are intended to highlight the co-existence of the diversity of brokerage in achieving collaborative results. New brokerage services, such as AirBnB and Uber, promote common value in different contexts. Ten years ago, there were no such brokerage services available, so simpler thinking of the triads was easier. The brokerage model takes also into account the changing relationships and the shared economy that will become more common in the future. The coalition is the most well-known structure, if compared to the triad structures that have existed so far in this work. It emphasizes the formation and change of relations between the three actors. For example, increasing collaboration or similarity between actors is a balancing factor for such relationships. And as noted, the mediation examines and identifies the embedding of dyads in triads. (Siltaloppi and Vargo, 2017) The research has confirmed that dyadic relations embedded in triads exert pressure on people to obey behavior and norms and are more steady over time (Krackhardt and Kilduff, 2002). It is important to understand the use of different mechanisms of social interaction. In this case, they may not be based on the usefulness of the choices made by the operators or on sensible and computational decision making. So, here, dyads create triads when a third common party or actor emerges to supports or forces others to behave. Hence, the mediation strengthens consensus and common practical action. (Siltaloppi and Vargo, 2017)



**Figure 13.** A mediation relationship. (Siltaloppi and Vargo, 2017)

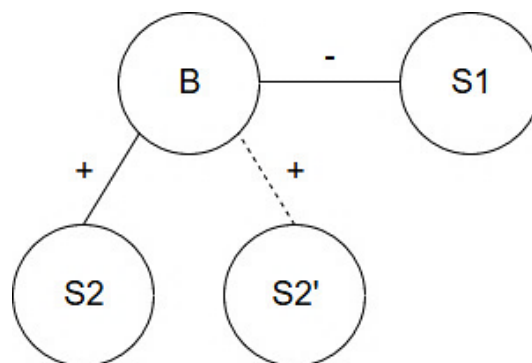
#### 2.1.4 Relationship intensity and co-opetition in triad

The balanced theory between triads introduced the possibilities for the plus and the minus signs between the relationships in a triad. The plus signified friend or positive relationships between actors and the minus signified negative, dislike or enemy relationship. The actors with a plus between them adopt the attitudes of each other but the actors with a minus between them oppose the attitudes sides each other. The term co-opetition means a relationship of two actors where a competition exists in some segments and a collaboration in others. Co-opetition can be defined also as a strategy embodying coexistent competition and collaboration between firms

(Gnyawali and Park, 2011). The co-opetition can happen as a result of the dynamics of the relationship between competition and collaboration also in triadic relationship. (Kim, 2018)

Also, the sentence *“the friend of my enemy is my enemy as well as that the enemy of my friend is my enemy”* was mentioned in the chapter of balanced theory. The same logic can be used to look at co-opetition in triad. In the case “friend of my enemy is my enemy”, firms can also recognize their competitor’s alliance partner as their competitors. (Kim, 2018) In fact, half of collaborative relationships occur between competitors (Bouncken et al., 2015). So, the firms can set competing threats to their competitor’s partners because these partners help the firms’ competitors to improve competitive advantages. This phenomenon is a co-opetition’s type in triad because the competitors’ collaborative relationships affect to the firms’ competition. Another case in here is “enemy of my enemy is my friend”, where two firms have a common competitor. The firms can possibly collaborate because the incentives to work together are very consistent with each other. Such firms face competing threats from their common competitor and therefore have a common goal of working together to combat threats. (Kim, 2018)

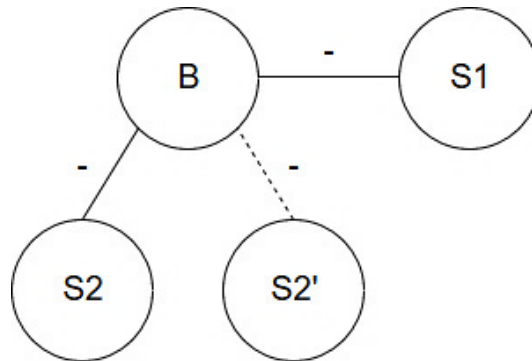
Collaboration and competition can also appear within relationships between a buyer and a supplier or between suppliers (Bouncken et al., 2015). When the strength of a collaborative relationships between two actors in triad is high, is the co-opetition more likely to appear. A strong collaborative relationship between two actors also conveys close contacts and criticality of partners with reciprocity and closeness. The stronger the collaborative relationship is, the more firms or actors integrate and support each other. A strongly connected partner of competitor can share its resources to achieve a common target. And that is the reason why it becomes a bigger threat than a weakly connected partner of competitor. So, based on that it can be said that the strongly connected partner of a competitor can be a more competitive and prominent threat than weakly connected partners of a competitor. That’s why, a competitive relationship between firms and their partner of competitor can be influenced by the strength of the partnership of competitor. An example of collaborative strength in “friend of my enemy is my enemy” co-opetition is described in Figure 14. In the example the actors are named as a B, S1, S2 and S2’ because in this thesis, these letters are specifically used also in other figures. But in co-opetition of “friend of my enemy is my enemy” these actors can be different firms or other partners. A competitor B’s strongly connected partner S2, can be a more critical source of competitive threat to S1 than the competitor B’s weakly connected partner S2’. The strongly connected S2 can also be a bigger and more oncoming threat to S1 than weakly connected S2’. The competitor B has competitive, tacit knowledge about S1 which can be acquired through experiences. (Kim, 2018)



**Figure 14.** A collaborative strength in “friend of my enemy is my enemy” co-opetition. (Kim, 2018)

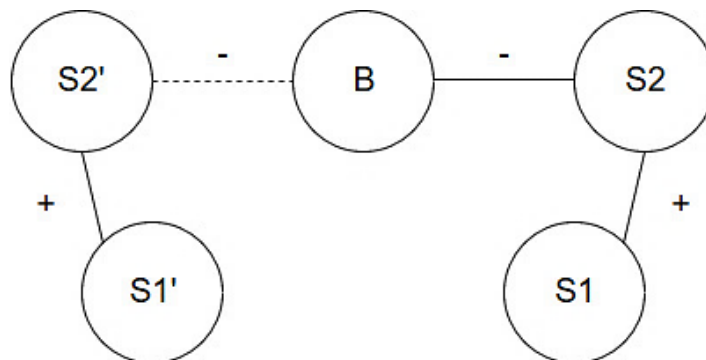
Not only the collaborative strength but also the competitive strength between competitors in a triad influences on co-opetition. A strong competitive relationship urges firms’ high interdependence with their competitors because their market success on loss is depended on their competitors. These kinds of firms are willing to do their best to beat their close competitors. And that

requires constant attention to their close competitors. If two firms have a strong competitive relationship with a common competitor, the co-opetition's type "enemy of my enemy is my friend" will occur. This situation is shown in Figure 15. There are highly competitive strengths between partners B-S1 and B-S2 but the strength between B-S2' is weak. Actors S1 and S2 have a common competitor as B so, they are threatened by the same competitor. But because of the market success and loss, they are also critically depended on their competitor B. And because of that the S1 and S2 are likely to harmonize their goals and therefore likely to work together. In contrast, when only S1 competes with B and S2' does not, competing with a competitor B is not their common target. So, there will not probably be collaboration between S1 and S2'. (Kim, 2018)



**Figure 15.** A competitive strength in "enemy of my enemy is my friend" co-opetition. (Kim, 2018)

There will be one more type of co-opetition called "friend of my enemy is my enemy". In this type it is more likely to appear with a strong competitive relationship between partners and their competitor. The actors will selectively pay attention to their competitors because of their limited capability. There is existing some main competitors who affect to partners' success and loss. That is why the actors may focus only on them. The Figure 16 illustrates this situation. The competitive relationship between B and S2' is weak whereas the relationship between B and S2 is strong. This causes that B is focusing more on competitor S2 than on S2'. On that account the actor B focuses on seeing and dealing with a competitor's partner S1 as a threat more than partner of S2', called S1', as a threat. Therefore, B is more interested in investing in competing actions against a competitor S2 and its partner S1 than with another competitor S2' and its partner S1'. (Kim, 2018)

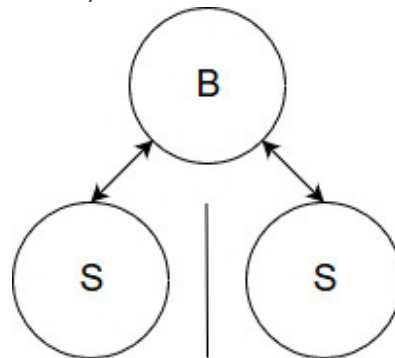


**Figure 16.** A competitive strength in "friend of my enemy is my enemy" co-opetition. (Kim, 2018)

## 2.2 Supplier-supplier relationships

Firms could pay more attention to what kind of interaction between their suppliers have. Buyer firms pay attention to the relationship between the buyer and the supplier and their development. In that case, the importance of relations between suppliers is forgotten. Although ultimately, the joint action of suppliers affects the acquisition of buying firms and thus its success. (Choi, 2007) It can be thought that suppliers in a triad will easily just compete and they will try to get a buyer's attention. But it is not that simple. There has been made some analyses, which will represent that the lack of interaction, or interactions, can affect the performance of supply network operations of buyer. So, the importance of them affects to a whole triad. The analyses have shown that with competition or collaboration alone cannot be achieved as much performance than with supplier co-opetition. The performance of supplier means how well a buyer will get the required products from supplier. It will manifest as operations outcome in terms of delivery, quality, cost, technical support and responsiveness. And quality and technical problems in production can be solved with the abetment between suppliers. Collaboration will also spark the creation of explicit and tacit knowledge. And on the other hand, a competition between the suppliers will create market efficiency. Collaboration and competition are both important aspects between the suppliers and in their relationship. (Wu et al., 2010)

Already in 2002 relations between suppliers have been discussed. Reviewing relationships of supplier begins by dividing the relationships into three different types. The types are competitive, collaborative and co-opetitive relationships. (Choi et al., 2002) Each of these types is an ideal type which just displays theoretical relationship between different kind of variables (Doty and Glick, 1994). So, the differences between the different types differ also in their compatibility, not just in the value of variables. All the three types of relationships between suppliers have different types of lines. First, the competitive relationship has a vertical line which defines that sometimes the relationship can also be hostile. The collaborative relationship is made up of two-way arrow that describes mutual interaction. Finally, the collaborative relationship is marked with a dashed line in order to simultaneously demonstrate the prevailing relationship of collaboration and competition in Figure 19. (Choi et al., 2002)

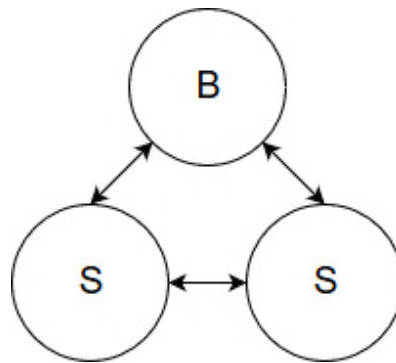


**Figure 17.** A competitive relationship between suppliers. (Choi et al., 2002)

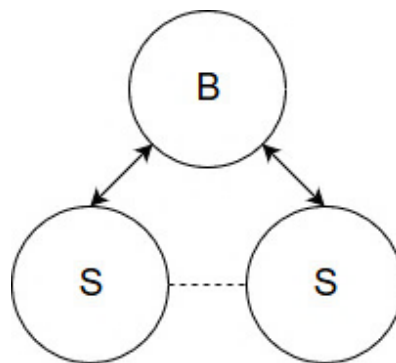
As seen in Figure 17, there does not exist communication between suppliers in competitive relationship in triad. Suppliers know existence of each other (Kurokawa, 1997). And they have gained some knowledge through a buyer or through a media. Generally, information about suppliers is kept secret in a buyer company, but suppliers are likely to know some details about their competitors. A buyer interacts with suppliers independently and all the information is transferred to the other supplier through the buyer. (Choi et al., 2002) So, the competitive relationship increases the bargaining power of buyer and that is why it might be ideal from buyer's perspective (Anderson et al., 1994). In other words, by controlling and managing the transfer of information between suppliers, the buyer allows for a competitive advantage for himself, for example, at lower

cost or to minimize the possibility of collusion between suppliers. However, the communication between suppliers is low and it occurs only in a focused context and through a buying firm. (Choi et al., 2002) Suppliers also deliberately withhold information only by trying to keep the competing supplier at bay. The competitive relationship is perhaps the most common of these three types of supplier-supplier relationships. However, in a competitive relationship, the other supplier is, so to speak, the winner and the other is the loser. (Choi, 2007)

Figure 18 shows that in a collaborative relationship supplier work tightly together. They work closely together to share information and even participate in projects of buyer together. As opposed to competitive relationship, suppliers share a lot of free information between each other. Suppliers may even have same targets which they are trying to achieve by sharing resources and expertise such as human resources, knowhow and production capacity. (Choi et al., 2002) A common target can be defined by the buyer or the suppliers have developed a target to respond to the buyer's action. Suppliers can even work together to develop a new technology or product or to share their production capacity. (Choi, 2007) To reduce competition, a collaborative relationship and collaboration can also lead to demand management and market sharing. If the competitive relationship is ideal from buyer's perspective, is the collaborative relationships ideal from supplier's perspective. It reduces competition between suppliers and at the same time it might increase bargaining power compared to the buyer. However, it is important to note that such relationships between suppliers are rare, even illegal in some countries. They are presented because of their potential existence. (Choi et al., 2002)



**Figure 18.** A collaborative relationship between suppliers. (Choi et al., 2002)



**Figure 19.** A co-opetitive relationship between suppliers. (Choi et al., 2002)

In contrast, the last relationship model between suppliers is not uncommon. A co-opetition relationship what is shown in Figure 19, combines a collaborative and competitive relationship. In that case, suppliers understand that competition is essential to maintaining business, but on the other hand, collaboration is essential for and market expansion and learning. (Choi et al., 2002) Thus, suppliers simultaneously compete and collaborate with each other (Choi, 2007). So, the

overall efficiency and competitiveness of both parties will increase with this collaborative relationship through direct communication and material exchange (Choi et al., 2002).

In Table 1 is given the five rows which reflect the product-market characteristics of the three different relationships between suppliers. The first row introduces product-market characteristics which influence relationship's type between suppliers. The fields where the perfect competition exists have usually characteristics of competition. In the competitive relationships there will not be only few suppliers selected who could dominate a market. Contrarily, in the collaborative relationships there will be collaboration because a business sector often has a monopoly position on a company. The products are typically very difficult to replace, and they are different which makes collaboration possible between the suppliers. And on the other hand, the relationship between suppliers and its dismantling would entail high costs for the buyer. In the co-opetitive relationship the nature of competition appears in oligopolistic industries. There are not so many firms on that kind of field, but they are typically similar size and they have very similar competencies. In oligopolistic environment the buyer has moderate switching costs even though that products are moderately differentiable. (Choi et al., 2002)

The row describing the flow of information tells the suppliers about the information they will transfer to other suppliers. In a competitive relationship the information flow is really limited, only mandatory or objective information is being transferred. The information, i.e. competitors' product features, production capacity or future demand, can be obtained also from the buying firm or through indirect sources. In a collaborative relationship the situation is quite opposite because the relationship is partly composed of information sharing and processing. It is said that a direct and subjective information can even be the primary reasons for collaboration between suppliers. And in a co-opetitive relationship the transferred information is general, and the detailed information of the firm is not necessarily reported to other suppliers. That can cause some tension between suppliers in a co-opetitive relationship but in turn the situation is same for both. (Choi et al., 2002)

The third row describes the time orientation between different type of relationships. When the competing relationship appears and an attraction of buyer is competing by suppliers, is the time spent on interaction naturally quite short-term. And vice versa when suppliers are collaborating it is necessary that they spent time with each other. In that case the time orientation is long-term basis. If the relationship between suppliers is co-opetitive the timeline depends on a quality of collaboration. But the co-opetitive relationship can last only as long as suppliers collaborate with each other, when they face common opportunities or threats. (Choi et al., 2002)

And in the last row of Table 1 is compared different dominant relationship focuses. Competitive relationships are well retreated and introverted. They can be described with a word self-centered. Again, trust between the suppliers is central to the collaborative relationship. (Choi et al., 2002) For the co-opetitive relationships the strategic interests are more important than mutual trust (Buchen, 1994). The benefit will be got through pursuing common business target. (Choi et al., 2002)

**Table 1.** *Dynamics in supplier-supplier relationships.* (Choi et al., 2002)

Dimensions	Competitive	Collaborative	Co-opetitive
Product-market characteristics			
1. Nature of competition	perfect competition	monopolistic competition	oligopolistic competition
2. Number of players	many	few	few
3. Concentration ratio	very low	very high	low to moderate
4. Nature of products	commodity	high differentiation	moderate differentiation
5. Switching costs of buyer	low	high	moderate
Information about the other supplier	objective	subjective	guarded
Primary time orientation	short-term	long-term	varied
Dominant relationship focuses	self-centered	trust-based	strategic interest based

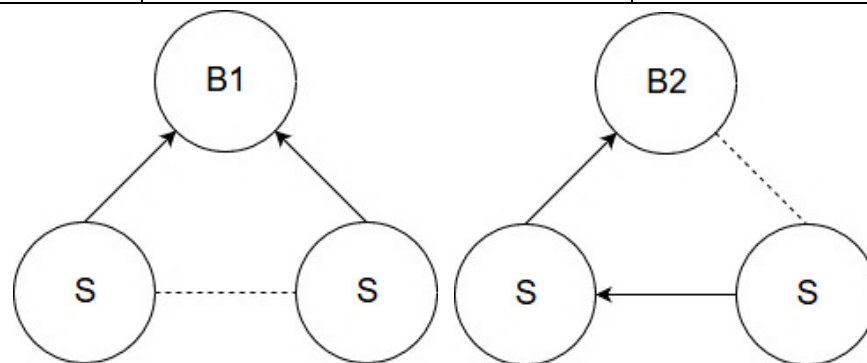
Looking at the supplier-supplier relationships there have been made more research, also with real-world cases, to develop a deeper understanding about supplier-supplier relationship. In one research there have been interviewed eight firms to form supplier-supplier relation archetypes by Wu and Choi. Interviewees has been made in buying firms and in their supplier firms. Here it has not been focused on data collection methods or data analysis, but to the types of supplier relationships created by the research. The product or service characteristics of the interviewed firms is told in Table 2. (Wu and Choi, 2005)

Some suppliers can be more important for the buying firm than some others (Holmen et al., 2013). The first company called B1 has two suppliers who work as a manufacturer as can be seen in Figure 20. The location country of supplier is the same but despite that has B1 closer relationship with another supplier. The reason why B1 has two suppliers is that it does not want to take up more than 30% of production capacity of one supplier. And the reason behind the 30% rule is that then it would not cause problems for B1 even if something happens in another supplier's production. With closer supplier has also longer past with B1 but another supplier is on the other hand the largest manufacturer in the world in its own field. It is also multinational and has many facilities located in the same countries where B1 exists. However, B1 almost demanded suppliers to collaborate on quality and production issues and thanks to that it had created an environment for free communication for suppliers. (Wu and Choi, 2005)



**Table 2.** Overview of firms interviewed. (Wu and Choi, 2005)

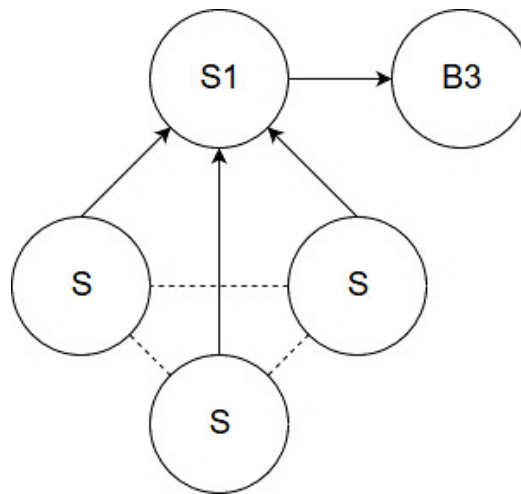
Buyer company	Product or service characteristics	Number of suppliers considered
B1	Production material Buyer-designed	2
B2	Production material Buyer designed Supplier designed production process	2
B3	Production material Buyer designed Supplier designed production process	14
B4	Services process owned by suppliers Commodity items	2
B5	Capital equipment Supplier-designed	9
B6	Capital equipment Supplier-designed	2
B7	Transportation service Standard service, little customization	2
B8	Production material Buyer designed Supplier-designed production process	2

**Figure 20.** The relationships between suppliers and a buyer in the firms B1 and B2. (Wu and Choi, 2005)

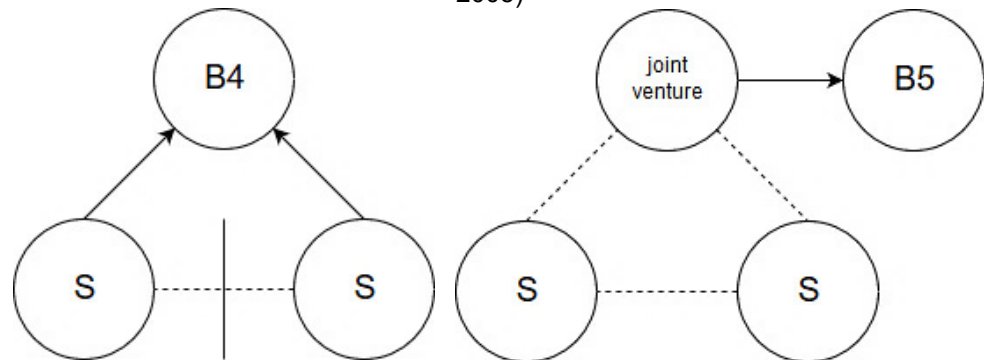
In the relationships between the B2 and suppliers are presented in Figure 20. There was in the beginning only one familiar supplier and another one was new. The familiar supplier manufactures the parts which one B2 has bought for it over 10 years. And all these years the relationship between them has based on mutual understanding, but at the same time B2 had started to think the risk with only one supplier. So, it brought up another supplier which bigger actor was. Even though this movement was important for B2 it also upset the ordinary supplier. Because of that the ordinary supplier did not want to move any knowledge or physical products for new supplier. And then, to add insult to injury, decided B2 to outsource the dream job to new supplier. Even though the ordinary supplier had dreamed on that. To having the dream job, it affected to the quality of new supplier so the “honeymoon” between B2 and new supplier was over. Unfortunately, the new supplier was also unwilling to make any investments for necessary improvement so the only possibility of B2 was to move the assembly work from new supplier to the ordinary supplier. In the end the ordinary supplier decided to admit taking that dream job which it was

always wanted. So, the ordinary supplier has become the type of supplier that B2 thought that the new supplier should have been. (Wu and Choi, 2005)

The buying firm B3 designed components and offered production to potential suppliers. So, last year's B3 had focused to scrape together many suppliers as is seen in Figure 21. At the same time B3 tried to find new suppliers with low cost production and put the pressure on domestic suppliers to cut price. As a defense reaction, all suppliers formed a network of suppliers among themselves. In the network supplier 1 was the leader and organized the rest of suppliers into a supply network. There were some benefits for B3 in this kind of arrangement. First, the network improved product quality and lowered cost of production over time. Secondly, suppliers in the network were able to respond to demand without making any capital investment. On the other hand, everyone's vision about the network was not the same. Because of the supplier 1 was not the exact buying company there were members who mistreated it. (Wu and Choi, 2005)



**Figure 21.** The relationships between suppliers and a buyer in the firm B3. (Wu and Choi, 2005)

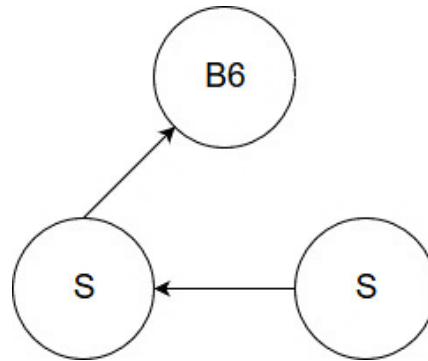


**Figure 22.** The relationships between suppliers and a buyer in the firms B4 and B5. (Wu and Choi, 2005)

The buying firm B4 worked in the field of telecommunication. It usually purchased large amount of materials and then stored them in internal warehouses. After a while two suppliers appeared, who eventually responded to the whole logistics services of company. The B4 understood that the situation between two suppliers could be challenging and it tried to keep them in different projects. On the other B4 tried also to urge suppliers to communicate because the logistics was not easy to control by two separate suppliers. But suppliers found that it was difficult to accept each other and work things out. And the competitive tension between these two suppliers did not calm down. In Figure 22 the tension between the suppliers is showed. (Wu and Choi, 2005) The

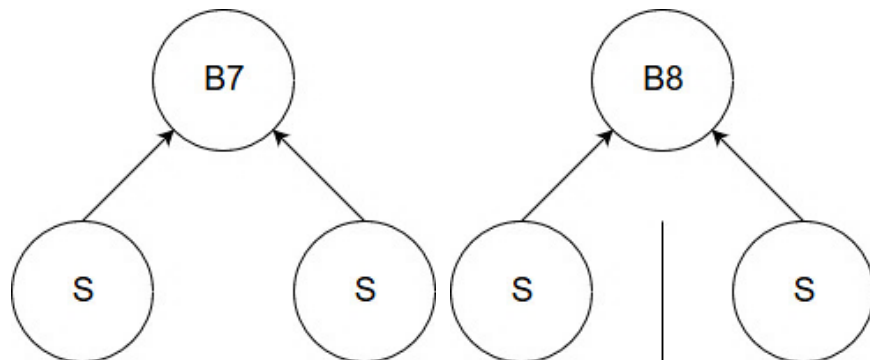
B4 could be defined as a competitive relationship between suppliers because the communication exists only minimally (Choi et al., 2002).

The microcontrollers and memory products were designed and manufactured by an industry leader B5. When the time came to develop new testing equipment there were nine potential suppliers involved. All nine suppliers and their engineers had gathered in a forum where B5 was expected to hear new solutions. There the potential suppliers work together but, in the end, one of the suppliers was chosen by B5. The joint venture was born between the B5 and supplier 1 and other suppliers started to buy equipment from this joint venture. This supply network structure is presented in Figure 22. There the letters S means the nine suppliers who still frequently transfer ideas and information. (Wu and Choi, 2005)



**Figure 23.** The relationships between suppliers and a buyer in the firm B6. (Wu and Choi, 2005)

In Figure 23 the buyer firm B6 communicates only with one supplier even though it has two suppliers. In the past B6 had used only one “full-service” supplier to supply its whole system in firm’s door production. The B6 wanted to increase the competition and opened a bidding for new tooling system. There were six suppliers involved and one was chosen by B6. Still after the bidding the prices of the ordinary supplier turned out to be lower than new suppliers. So, the new supplier got that contract which was selected by the competition and the ordinary supplier got the rest. Nonetheless, the B6 suggested that the ordinary supplier could buy this agreed service from new supplier so that the firm itself had to deal with one supplier only. The B6 relied on the ordinary supplier because they had a common past. So, the ordinary supplier was relied on to teach the new supplier how to do business with B6. (Wu and Choi, 2005)



**Figure 24.** The relationships between suppliers and a buyer in the firms B7 and B8. (Wu and Choi, 2005)

The firm B7 already had two suppliers who took care of small package shipping. These two suppliers are among the largest delivery providers in the world. The B7 had a strategy to keep these two suppliers separate because “there was not any need for suppliers to collaborate”. And as shown in Figure 24, there were not any communication between the suppliers. This made it

possible for the buyer to define all the information for the distribution suppliers themselves. The Figure 24 shows also the relationships in the last firm. Because the firm B8 manufactures products with a relatively short life cycle so it is almost impossible to change supplier during the that time. The firm B8 selected two suppliers out of ten to minimize the risk of production and business. The B8 wanted to keep the suppliers in tight rein so it did not even tell the name on another supplier to them. In practice, the suppliers know that also other supplier exist, but they do not know their names or any details about them. The vertical line in Figure 24 highlights the “wall” between suppliers. (Wu and Choi, 2005)

As a result of the research there has identified five different archetypes in supplier-supplier relationships in Table 3. Archetypes are complex social phenomena that are based on our understanding of existing knowledge and the phenomenon being studied (Wagner et al., 2018). First archetype is conflicting type of relationship where one supplier was able to work with another supplier but at the same time another supplier was not. In the contracting relationship two suppliers work for one buyer but there is an arrangement where one supplier supplied another. Dogfighting relationships means exactly what it sounds like. There is only compulsory information changed between the suppliers. In contrast to dogfighting, in networking relationship tried the suppliers met the requirement of buyer with collaboration. In the fifth relationship, transacting, the suppliers execute a professional working relationship to optimize their operating profit. The benefit about these five archetypes is that they summarize the dynamics of the relationship between suppliers so that are easy to combine and understand. (Wu and Choi, 2005)

Supplier-supplier relationships are more dynamic and complicated than the relationship between a buyer and a supplier. There does always exist competition and collaboration simultaneously in a supplier-supplier relationship. This competition and collaboration make it possible to accomplish goals of suppliers’ company. And, a complexity of the supplier-supplier relationship is displayed in their sharing practices of information. And there was an interesting point figured out about information sharing. The tacit knowledge can be shared without sharing a lot of explicit knowledge. (Wu and Choi, 2005)

**Table 3.** *The supplier-supplier relation archetypes.* (Wu and Choi, 2005)

Archetypes	Applicable cases	Supplier-supplier relationship definitions
Conflicting	B4	Suppliers have entirely different attitudes about working together when they are expected to collaborate to achieve requirements of buyer
Contracting	B2 and B6	At least one of the suppliers feel threatened to give away business and core competency
Dogfighting	B7 and B8	Competing suppliers for the same buyer with little or no interaction or with or without knowing the name of other supplier
Networking	B3	Multiple suppliers collaborate to achieve leverage, resource pooling and information sharing when one supplier is on lead
Transacting	B1 and B5	Peer suppliers rationally working together to meet the requirement of the buyer, and understanding the equal status between them

The review shows that the in the five archetypes can also be seen the three types of supplier-supplier relationships. These types of supplier-supplier relationships can also be used to look more closely at the impact of supplier relationships on triad operations. When there is a competitive relationship between suppliers, the buyer has the power to control the information provided to the suppliers and maintain the competition. Collaboration with suppliers is also beneficial to the buyer. On the other hand, it is possible that the information may be retained or even distorted by the suppliers. And if collaboration goes for a long time, suppliers may get so much know-how on the buyer's business that they will become competitors to the industry of buyer. In a co-opetitive relationships, the buyer may gain the benefits of competitive and collaborative relationship. It can also cause uncertainty between relationships. There is a possibility that suppliers will take advantage of this regulation and the relationship may suffer in one way or another. (Choi, 2007)

Relationships between suppliers are not straightforward or static, as they may be influenced not only by the buyer, but also by external factors. The development and management of relationships between suppliers has become more important since the use of external resources and rapid spread of outsourcing (Hallikas et al., 2005). The review has also indicated that in addition to the supplier-supplier relationships, the buyer-supplier relationships must be more thoroughly understood so that the interaction of the triad be a whole. And it should also be noted that the supplier-supplier relationship type depends on the circumstances maintained by the buyer.

## 2.3 Buyer-supplier relationships

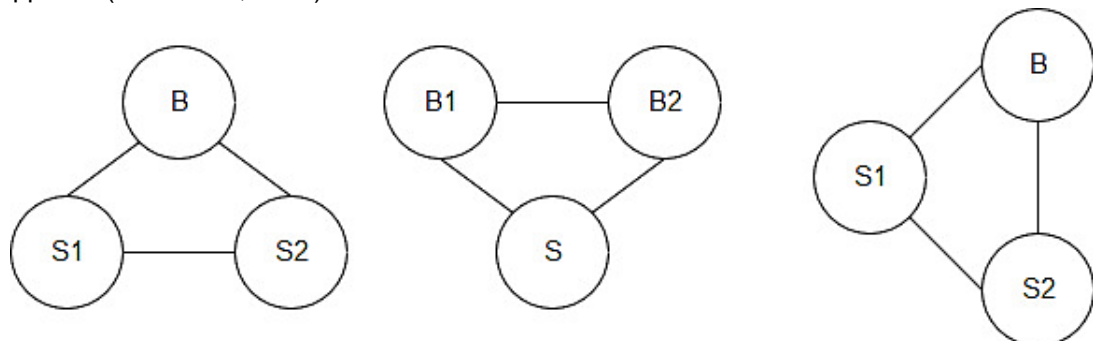
There is a buyer-supplier relationship for each supplier-supplier relationship because it cannot exist separately. The supplier-supplier relationship is dependent on the buyer-supplier relationship in a buyer-supplier-supplier triad. (Wu and Choi, 2005) Since the important functions of companies are often located outside the traditional organizational boundaries to be implemented by external actors, the importance of the relationship between buyers and suppliers has also increased (Tangpong et al., 2015). A buyer-supplier relationship can, at its simplest, be categorized into two types as competitive or collaborative. A competitive relationship can be easily seen that there two firms are struggling in a win-lose context. If the buyer-supplier relationship is competitive, then it is often unfair. The buyer may use very short-term services and the supplier may feel exploited. An unfair treatment of a supplier can eventually lead to the supplier's animosity towards the buyer. (Choi and Wu, 2009)

The situation is more profitable if a relationship between a buyer and a supplier is collaborative. In that case they will share common targets and they are ready to work for achieving it together. The same target is achieved by addressing conflict situations through discussion, dialogues and acting equally. (Choi and Wu, 2009) So a collaborative relationship leads suppliers and a buyer to consider each other as strategic partners. Even though on the other hand they must be concern about their own economic risks so the relationship can be also competitive. A collaborative relationship lives and reacts to transactions because it is not always clear how these could affect to the relationship between a buyer and a supplier. They both are concerned about potential risks caused by transactions. It should also be noted that although the relationship between a buyer and a supplier would be a collaborative relationship it could become competitive over time. On the other hand, a competitive relationship can become a relationship of collaboration. (Wu and Choi, 2005)

The relationship between a buyer and a supplier is always a dyad, which is only part of a larger corporate network (Choi and Wu, 2009). And when one of the players of a dyad establishes a coalition with a third actor, the arrangement then necessarily forms a triad. There can be three different kind of triads where the buyer-supplier relationship can exist. These three types could be a buyer-supplier-supplier triad or a buyer-buyer-supplier triad, or a buyer-supplier-supplier of supplier triad as seen in Figure 25. Figure 25 is also representing the archetypes of coalition

theory, which has introduced earlier. The buyer-supplier-supplier triad is formed between two levels where the buyer has a contractual relationship with suppliers in the same level. Also, the buyer-buyer-supplier triad performs across two levels where a one same supplier supplies to both buyers. In the buyer-supplier-supplier of supplier triad performs three levels because the buyer has a contractual relationship between one supplier S1 and it has a contractual relationship in the next level with another supplier. (Bastl et al., 2013)

The key assumptions of coalition theory were introduced earlier and now they can be reviewed in the buyer-supplier context. First assumption is related to the power asymmetry between actors. Between a buyer and suppliers, the distribution of power is related to the differences in possession of resources. Second assumption was that the stronger actor wants to control others. A dominant actor will strive to achieve a dominant position, but it cannot create dependent suppliers. Third assumption assert that power is additive. Additiveness should be understood as an ability of firm to combine similar and complementary resources through scope's and scale's economics. And both resources are a device of increasing power of actors. Fourth assumption assumes the links' existence between triadic actors. Here it means the relationships' existence between buyers and suppliers. (Bastl et al., 2013)



**Figure 25.** Three archetypes of coalition between buyer(s) and supplier(s). (Bastl et al., 2013)

When the buyer-supplier relationship is indicated, can the same eight firms be used than in the supplier-supplier relationship. The firms were named as B1, B2, ..., B8 in the research made by Choi and Wu in 2005. There are couple of benefits which only the buyer has when the triad is formed. First, a buyer selects the suppliers it wants and then the suppliers will be arranged in a form that the buyer wants. About the strategic, these are few of them that are common to all buyers as can be seen in Table 4. Of course, all buyers want to minimize the supply risk for having more than a one source. Buyers also wanted to keep suppliers under an occupation of competition from another supplier.

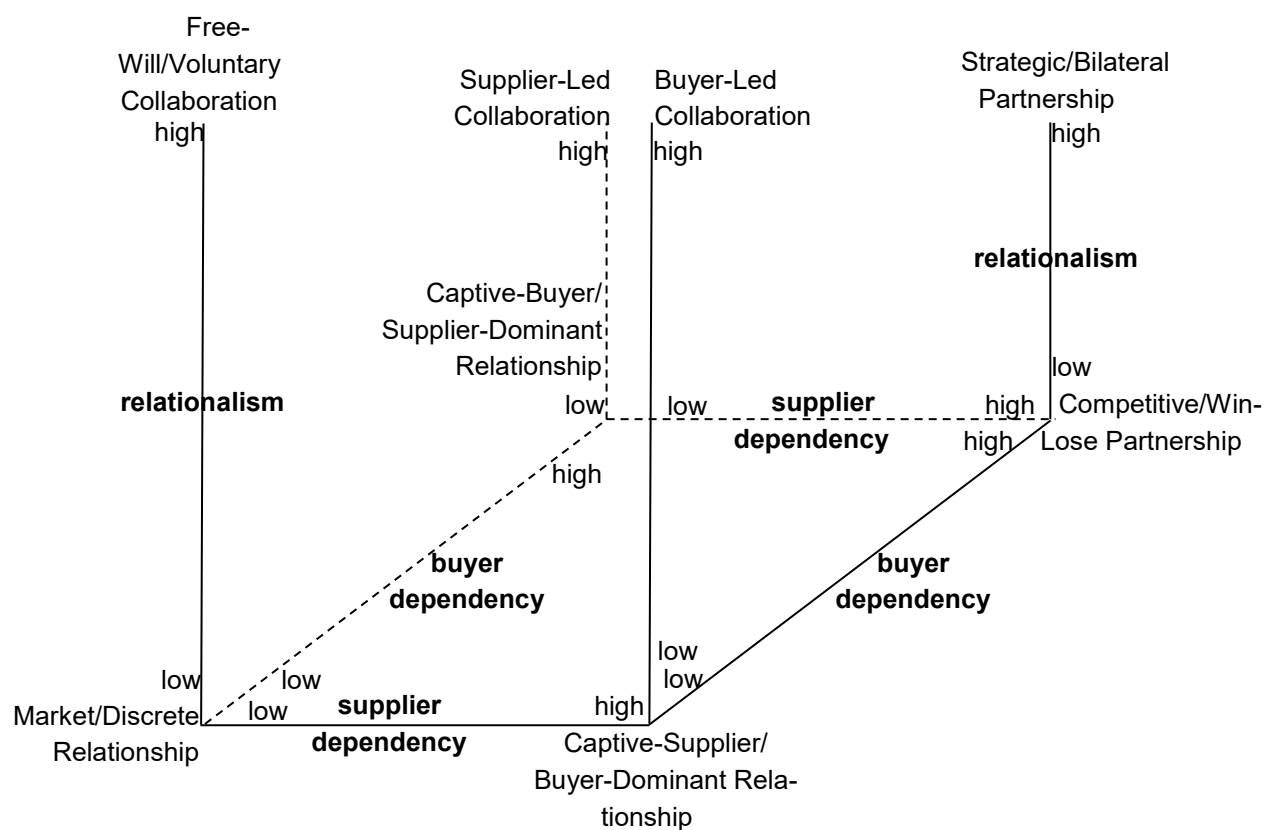
There is used words such as collaborative, arms-length, professional, transactional, alliance, and working relationship describing the characteristics of buyer-supplier relationships. The alliance and collaborative both subscribe a closer relationship between supplier and buyer. And the opposite for them are the arms-length and adversarial buyer-supplier relationships. The transactional and professional relationships are halfway from the ones that are mentioned earlier. However, in a half of these firms the relationship of a buyer and one supplier was closer than the buyer's relationship to other suppliers. Usually the favorite suppliers were those who had been familiar with buyer for years. Even though, these buyer-suppliers' relationships were already workable, the buyers had to bring new suppliers to network to reduce supply risk and competitive pressure on the favorites. (Wu and Choi, 2005)

**Table 4.** *The intents and characteristics of buyer-supplier relationships in firms that have been researched. (Wu and Choi, 2005)*

Buying company	Strategic intent of a buyer for a supplier and their relationships	Buyer-supplier relationship characteristics
B1	To reduce supply risk with two suppliers To improve suppliers' operations performance by supplier's collaboration	Long-term alliance relationship with supplier 1 Cordial, working relationship with supplier 2
B2	To reduce reliance on supplier 1 by bringing in a new supplier To reduce supply management task by having supplier 1 to manage another supplier	Collaborative relationship with supplier 1 Transactional working relationship with supplier 2
B3	To reduce cost by consolidating supply base and increasing the level of outsourcing	Transactional and somewhat adversarial working relationship
B4	To receive seamless logistics service from two suppliers by having them coordinate activities closely together	Collaborative relationship Meaningful information exchange
B5	To create a new product by tapping into the synergy of supplier	Collaborative relationship with supplier 1 Professional working relationship with other suppliers
B6	To set up alternate suppliers as potential substitute to supplier 1 To reduce supply management task by having one supplier to manage another	Collaborative relationship with supplier 1 Working relationship with supplier 2
B7	To keep suppliers on their toes to get better pricing	Arms-length relationship
B8	To reduce supply risk by using two parallel suppliers To exert competitive pressure on the suppliers through competitive bidding	Arms-length relationship Meaningful information exchange

These characteristics in Table 4 can be categorized into two main categories that are relational attributes and power-dependent attributes. Relational attributes can occur in a variety of forms, such as, usually, collaboration, commitment, trust, integration and relative standards. Power-dependence attributes, on the other hand, include power, dependency and transaction-specific investments. Both relational and power dependency attributes affect the performance of buyers and suppliers, such as collaboration, and are therefore important for business-to-business relationships. (Tangpong et al., 2015)

Over the years, views and numbers on the typology of the relationships between buyer and supplier have varied. There has been classified the relationship between a buyer and a supplier to eight different types by using relational and power-dependence attributes (Tangpong et al., 2015). These classifications are presented in Figure 26 and they are based on earlier studies. The principle of relationalism, supplier dependency and buyer dependency have been used to determine types of buyer-supplier relationships. Relationalism is configured as the degree to which supplier firms and buyer firms advance behaviors that maintain and enhance their relationship (Smith, 1998). It describes the behavior of buyer and supplier firms that improves, promotes or maintain their mutual relationship and reflects long-term collaborative relationships. Dependency is divided into two different variables. The first of which is the supplier's dependence on the buyer and the other is the buyer's dependence on supplier. These two are used because they together represent the relative power-dependence positions of supplier firms and buyer firms. (Tangpong et al., 2015)



**Figure 26.** The proposed typology of buyer-supplier relationship. (Tangpong et al., 2015)

Four of these eight types, market/discrete relationship, captive-buyer/supplier-dominant relationship, captive-supplier/buyer-dominant relationship and strategic/bilateral partnership are older ones and have been established in the previous researches. The rest four are newer one and established in 2015. These eight types of relationships are briefly considered in this thesis. For each of types has defined its own performance-influencing mechanisms in Table 5 that affect performance variations. In market/discrete relationships exists low relationalism and low dependence. Buyers and suppliers rely on market mechanisms to manage exchanges and thus allow for low coordination costs. (Tangpong et al., 2015) These kind of relationships can be categorized as independence relationships because the buyer can seek alternative suppliers easily with low search costs (Cox, 2001). On the other hand, they abandon the possibility of learning opportuni-



ties for collaboration. In the captive supplier/buyer dominant relationships and captive buyer/supplier dominant relationships, the dominant actor makes use of the economic benefits using negotiating power. At the same time, the performance of the captive actor is optimized. In this case, the continuity of the dedicated actor's viability depends on the willingness to maintain a relationship with the dominant actor. In the strategic/bilateral relationships, both the buyer and the supplier are in favor of mutual commitment, trust and goal-seeking. They share both the benefits and the risks. Collaboration between the buyer and supplier is crucial to the development of the relationship, which in turn makes it possible to optimize overall performance. (Tangpong et al., 2015)

In the free-will/voluntary collaboration, an independent buyer and suppliers are willing to voluntarily promote their collaboration. Their relationship of collaboration is therefore based on volunteering rather than strategic necessity. This is a clear difference compared to a necessity-based strategic partnership (Bensaou, 1999). In this case, the buyer and the supplier make use of their unique strengths, promote their orientation towards the common target and commit themselves to open communication, leadership and information sharing. There can happen real breakthroughs in the performance of both the buyer and suppliers. In the supplier-led collaboration or in the buyer-led collaboration, actors seek mutual benefits through long-term relationships. In supplier-led collaboration, the supplier can control performance by performing development or design work with the buyer. The buyer can, on a reciprocal basis, offer innovations or ensure the availability of critical supplies and thus improve its performance. In a buyer-led collaboration, the buyer moves operations through the supplier network. In this case, the supplier can reinforce its straightening capacity by improving production planning and its capacity. In the competitive/win-lose partnerships, buyers and suppliers are not interested in interaction, norms or commitment. Both strive to share and promote their own roles, regardless of their interdependence. (Tangpong et al., 2015)

**Table 5.** Summary of the types of buyer-supplier relationships. (Tangpong et al., 2015)

Type of buyer-supplier relationship	Relationalism	Supplier dependence	Buyer dependence
Market/discrete relationship	low	low	low
Captive-buyer/supplier-dominant relationship	low	low	high
Captive-supplier/buyer-dominant relationship	low	high	low
Strategic/bilateral partnership	high	high	high
Supplier-led collaboration	high	low	high
Buyer-led collaboration	high	high	low
Competitive/win-lose partnership	low	high	high
Free will/voluntary collaboration	high	low	low

Based on these eight types of buyer-supplier relationships can be said that they are a complex phenomenon. There is involving dynamic interactions between buyer and suppliers. (Tangpong et al., 2015) So, the buyer's role is managing in co-opetition supply relationships and its responses to the suppliers' behavior. So, the buyer can straight affect to the relationships of suppliers. The buyers, as the name buyer says also, buy and design the supply network and authorize the communication between suppliers by applying purchasing power. It is not uncommon that the buyer tells its suppliers that they should collaborate, or they are going to face some sanctions. The term buyer influence is defined as the activities that a buyer firm binds in to managing competing suppliers on supplier-supplier co-opetitive relationship. In the research is presented the hypothesis that "a buyer influence has a direct and positive effect on co-opetition of supplier-supplier such that the stronger the buyer influence is, the more intense the relationship between suppliers is", by Wu, Choi and Rungtusanatham (2010). It is possible for the buyers to affect the relational behavior between suppliers. (Wu et al., 2010)

## 2.4 Summary of triads

When it comes to presenting information about triads and their relationships, one can say that it is not a simple matter. Relationships are not at all simple or similar and the same can be said about the relationships existing in triads. It is possible that even the smallest thing, word or act can affect on the relationships between the actors in a positive or a negative way. Thus, static makes it difficult to predict relationships. And not always, the reaction is not easy to predict in advance.

Based on the research has been represented five archetypes of supplier-supplier relationships by Wu and Choi (2005). As a result of this research, there existed collaboration in two types of these archetypes. In the type called networking, work several suppliers together while one supplier leading their mutual action. And in the type called transacting, collaborate suppliers with equal status to meet the requirements of a buyer. It is interesting that there were also the largest number of suppliers in the companies where collaboration took place. On this basis, one might think that an importance of collaboration between suppliers in the triads of the two suppliers should be further emphasized regardless of nature of business. And in addition, the research showed that collaboration went smoothly, regardless of whether a product or a service was designed by a buyer or a supplier.

And when looking at the relationship between a buyer and a supplier, it can be thought that the importance of collaboration is essential for both business and the triad. A triad is the smallest unit of business network and because of business, the triad is made up of actors pursuing the same goal. Thus, the buyer's relationship with both suppliers is likely to be positive. As previously discussed in the balanced theory, the balance of the triad remains in this case only if the mutual relationship between suppliers is positive. And on the other hand, in eight types of buyer-supplier relationship, existed collaboration especially in market/discrete relationship and in free-will/voluntary collaboration. In these two types a supplier dependence and a buyer dependence are both low. Collaboration is particularly emphasized in the latter type, where relationalism is high. Collaboration and an achievement of a common target are thus pursued through discussion, information sharing and common management principles.

There is also another theory explained which is called as coalition theory. There is presented four key assumptions based on the coalition theory and each of them can be seen in the triad between buyer and two suppliers. In a triad of buyer-supplier-supplier, it can be typically thought that a buyer has more power. Then, a buyer is the most powerful actor because suppliers are needed based on business of buyer. On the other hand, the second assumption is likely to materialize. Because even though a buyer might be the strongest actor, suppliers are likely to try to control their relationship with the buyer and another supplier. A supplier's intention is to make

itself necessary in the eyes of the buyer and at least as important as another supplier. Thirdly, the sum of power of two actors is equal to the collective power of the coalition. That is, one can think that ability and readiness of suppliers to collaborate guarantees the power that triad has. And lastly, the coalition already exists in a triad-like network. This is especially important for the firms which have already been interviewed before this thesis and are already known to be project networks.

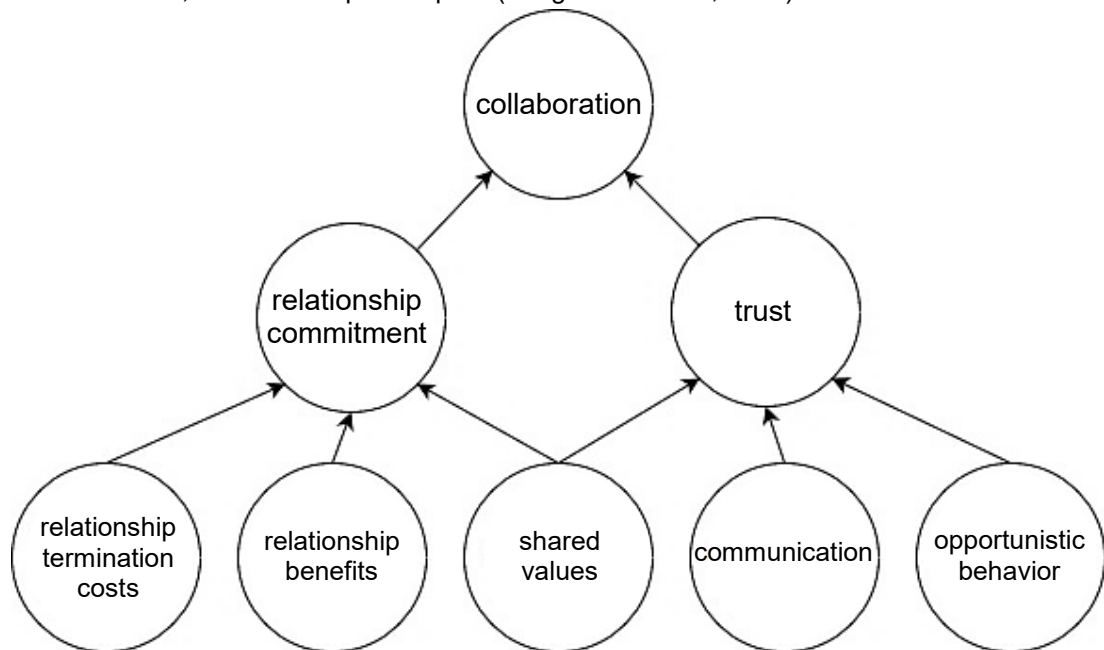
“No business is an island”, has been said. And neither is any relationships or any triad an island. Relationships are always impacting on, and influenced by, other relationships in different ways. (Dubois, 2009) And the same impact exists in triads. However, this alone cannot be used to say that the triad is a collaborative system. It is needed to learn more about collaboration and its content.

### 3. COLLABORATIVE CONNECTIONS

Why it is necessary for firm to have collaborative relationships? Collaboration is working together to the same end (Holm et al., 1996). Whether it be an individual, an actor or a firm, by networking and collaboration it is possible to go further than alone. Regardless of the form of collaboration, it involves sharing responsibilities, working together and deciding targets together with others. Then it is possible to achieve more than anyone could achieve by alone themselves (Barfield, 2016).

The collaborative in business relationships are built with the supply network partners of firms because with them it is possible to achieve a competitive advantage, efficiencies and flexibility. The goal is to create long-term collaborative relationships so that partners strive to achieve a unique, shared value. Instead of many suppliers, buyers and manufacturers are seeking for long-term supplier relationships with smaller amount. This will ensure the existence of valuable resources and technologies, making full use of skills and strengths of selected suppliers. It has also been found that companies that have collaborated, have achieved better service levels, flexibility and visibility, and have improved customer satisfaction. (Nyaga et al., 2010)

The most important factors in collaboration are relationship commitment and trust. These two factors produce outcomes that promote productivity, effectiveness and efficiency. Commitment and trust lead also directly to collaborative behaviors that are conducive to relationship marketing success. As seen in Figure 27, collaboration is the only outcome that is influenced directly by both trust and commitment. An actor who is committed to the relationship is eager to collaborate with another actor because of an urge to make the relationship work. Trust has been said to lead to collaboration, so it is an important part. (Morgan and Hunt, 1994)



**Figure 27.** The importance of relationship commitment and trust for collaboration. (Morgan and Hunt, 1994)

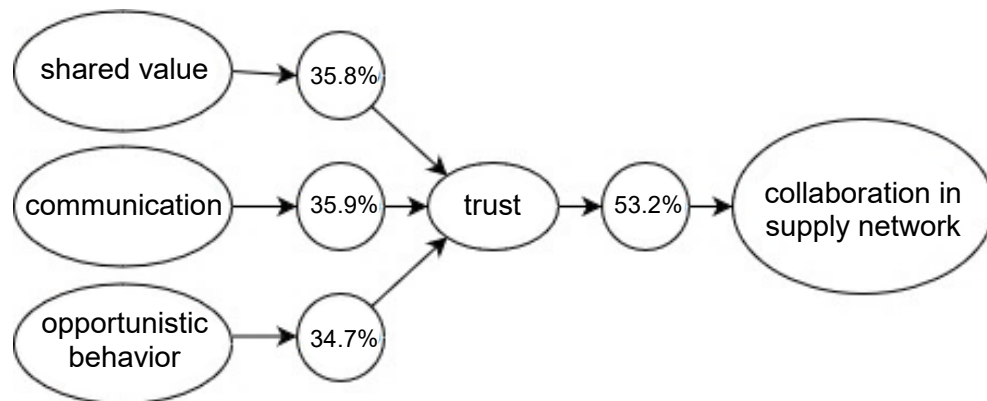
### 3.1 Collaboration in business relationships

Collaborative behavior is extremely important in business relationships and for supply network management. Collaborative business relationships are a popular means of dealing with resource constraints, increasing competition in the market and accelerating technological development (Palakshappa and Gordon, 2007). The main target is to achieve effectively extraordinary and innovative results. These can be achieved by basing on shared aims, commitment and belonging, feeling of urgency, mutual trust and respect, on open communication and skills and knowledge, that complement others. Collaboration is constituted to develop new understandings, solve problems and contemplate new products. Collaboration aims to achieve certain goals and results. (Kac et al., 2016) As a result of collaborative business relationships can be achieved also some benefits which can be divided into two categories: tangible and intangible. Intangible benefits arise from the development of expertise and special skills in learning. Concrete outputs or benefits are the production of additional production, the maintenance of a competitive advantage and the improvement of market share. (Palakshappa and Gordon, 2007)

As with human relationships, trust is perhaps the most important thing for establishing a relationship of collaboration. There is also a need for mutual trust between the actors involved. According to the relationship's commitment trust theory, there are three key predecessors which called communication, opportunistic behavior and shared values (Morgan and Hunt, 1994). This theory can be implemented in all organizational relationships, including for example, between suppliers and buyers. Many researches over the decades have shown the importance of trust in supply network management relationships. (Kac et al., 2016) Firms or actors will also exchange critical information and in order for this sharing to occur, the high level of trust must exist among the collaborative actors (Whipple and Russell, 2007). So, trust is also an important factor for a successful relationship with buyer and suppliers.

There has been made a research by Kac, Gorenak and Potocan (2016) where the contribution of trust in collaboration has been viewed. As a basis of that research, the key predecessors are used. These three, communication, opportunistic behavior and shared values, are key factors which affect on trust (Morgan and Hunt, 1994). This research tried to figure out if there is a statistically significant influence of trust on collaboration in supply chains. The research model with results is described in Figure 28. The presuppositions of the research were that shared values and communication affect trust positively and opportunistic behavior affects negatively. These presumptions can be confirmed by looking at Figure 28 where the result of the study is presented. So, trust has significantly and statistically positive effect to collaboration in supply network. (Kac et al., 2016)

Through this research, it can be said that trust is one of the most important part when collaboration between actors, firms or organizations will be built in supply networks. Trust consists of three different factors and all of them also play a significant role in collaboration in supply chain as seen in Figure 28. Getting good business relationships in the supply network requires good collaboration. And if all actors, buyers and suppliers have the same goal and work together for their own good, the success cannot fall behind.

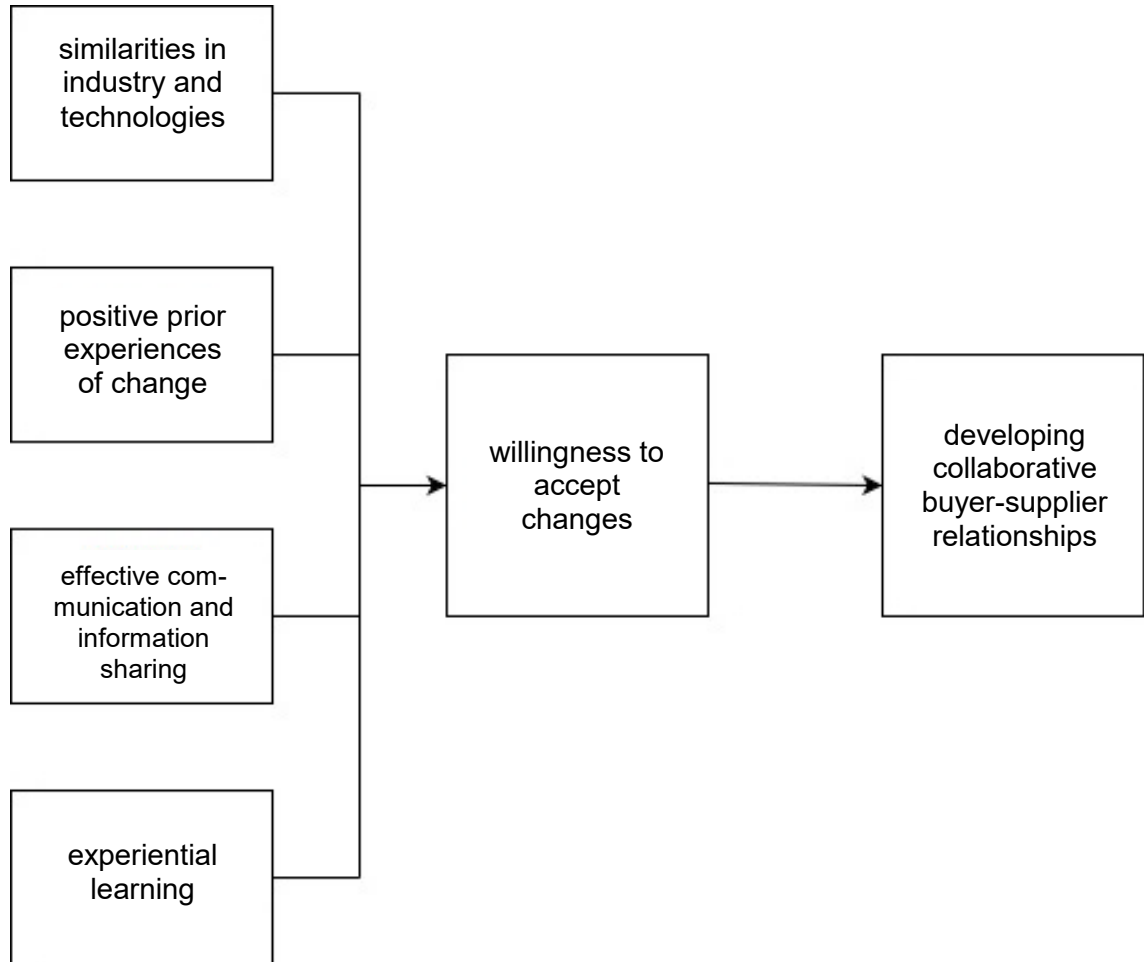


**Figure 28.** The model of trust affecting positively to collaboration in a supply network. (Kac et al., 2016)

### 3.2 Supplier and buyer perspectives on collaborative relationship

In this chapter is examined the collaborative relationship between a buyer and a supplier. Collaboration has been defined as appearing when at least two independent firms work jointly to boost supply chain operations with greater success than when working separately (Whipple and Russell, 2007). Nevertheless, this definition can also be applied to collaboration between two or more actors, like buyer and suppliers. The collaborative relationship between a buyer and suppliers has been shown to benefit both parties in terms of product quality, cost reductions and lead time of both. These relationships may include information sharing in both ways, a high level of confidence and direct assistance by buyer to suppliers. The direct assistance may improve long-term supplier contracts, production performance and the involvement of suppliers in new process and product developments of buyer. (Greenwood and Langfield-Smith, 1998) Collaboration between the buyer and the supplier can often or almost always be developed even if it already exists.

Whether it is the development of a non-existing or already existing partnership, the means which are presented to it decades ago, are still topical. These four means are shown in Figure 29. The firms in the same industry may have common forms and practices of certain production methods and techniques. Of course, technological differences and restrictions on the supplier's production capacity may limit the introduction of new production methods. But it is easier for a supplier in the same industry with a buyer to establish a collaborative relationship than for a supplier from another industry. Over the past decades, the use of various management, quality management and change programs has become more common. A buyer-side requirement that the supplier should change, for example, a change program is easier to accept if previous changes have produced positive results. The use of change programs also requires the involvement of the supplier's employees in the joint process. And since resistance to change always occurs, it is easier to eradicate or mitigate through successful experiences. At the same time, however, a variety of training programs and changes make for a more receptive and educated workforce, so a positive impact on change is important. (Greenwood and Langfield-Smith, 1998)

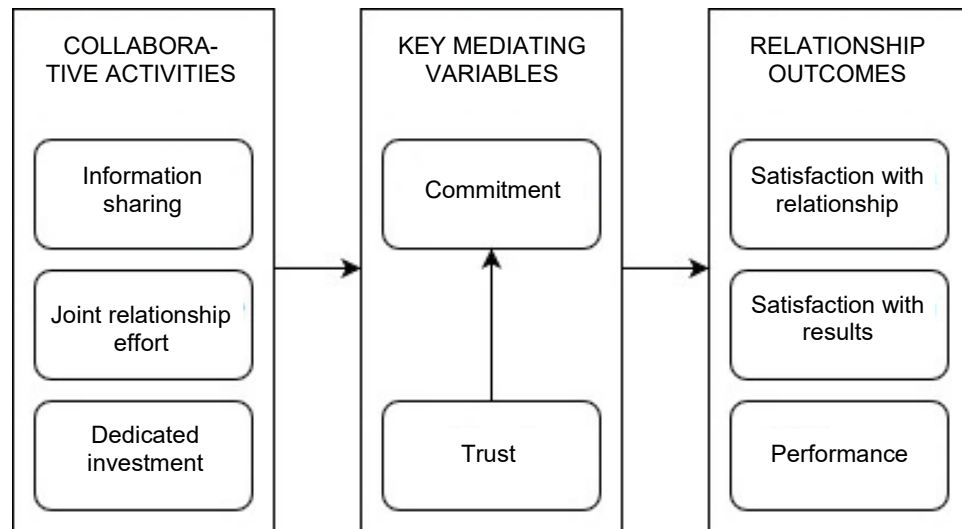


**Figure 29.** Factors that influence the development of a buyer-supplier relationship. (Greenwood and Langfield-Smith, 1998)

An effective collaborative relationship with the supplier network between the buyer and the supplier requires a high degree of trust. And achieving trust requires effective reciprocal communication and sharing of information (Ellram, 1995). If communication is inadequate, it has also been identified to be as a barrier to trust between a buyer and suppliers. In addition, trust also requires effective communication between suppliers and their staff when suppliers want to expand the buyer's changes. The last factor in the development of collaboration is experiential learning, which means that the individual participates in learning by doing things. A firm, a supplier or a buyer can adapt to changes or new things by participating in a change program. At the same time, experiential learning can lead to more effective communication about achieving change and its benefits. Opportunities for participation between the supplier and the buyer can provide opportunities to build trust and closer collaboration and improve communication processes. These four factors affect the ability of the supplier and the buyer to accept changes. The ability to adapt to change is essential in order to make collaboration between the supplier and the buyer possible. (Greenwood and Langfield-Smith, 1998)

Even though the collaborative relationships should cause benefit for all partners of supply network there is still a concern about equality when looking at relationships between actors. Suppliers have not always been felt a feeling of equity on the part of suppliers (Corsten and Kumar, 2005). There has been made the research by Nyaga, Whipple and Lynch (2010) where has been investigated how did the perspective of supplier and buyer differ on collaborative relationships.

There has introduced hypotheses of collaborative activities, key mediating variables and relationships outcomes and the perspective of a buyer and a supplier on these hypotheses. The collaborative activities typify the willingness, to take and give in the relationship to the exchange of each actor. The collaborative activities can be divided here into information sharing, joint relationship effort and dedicated investment as seen in Figure 30. (Nyaga et al., 2010)



**Figure 30.** *The conceptual model.* (Nyaga et al., 2010)

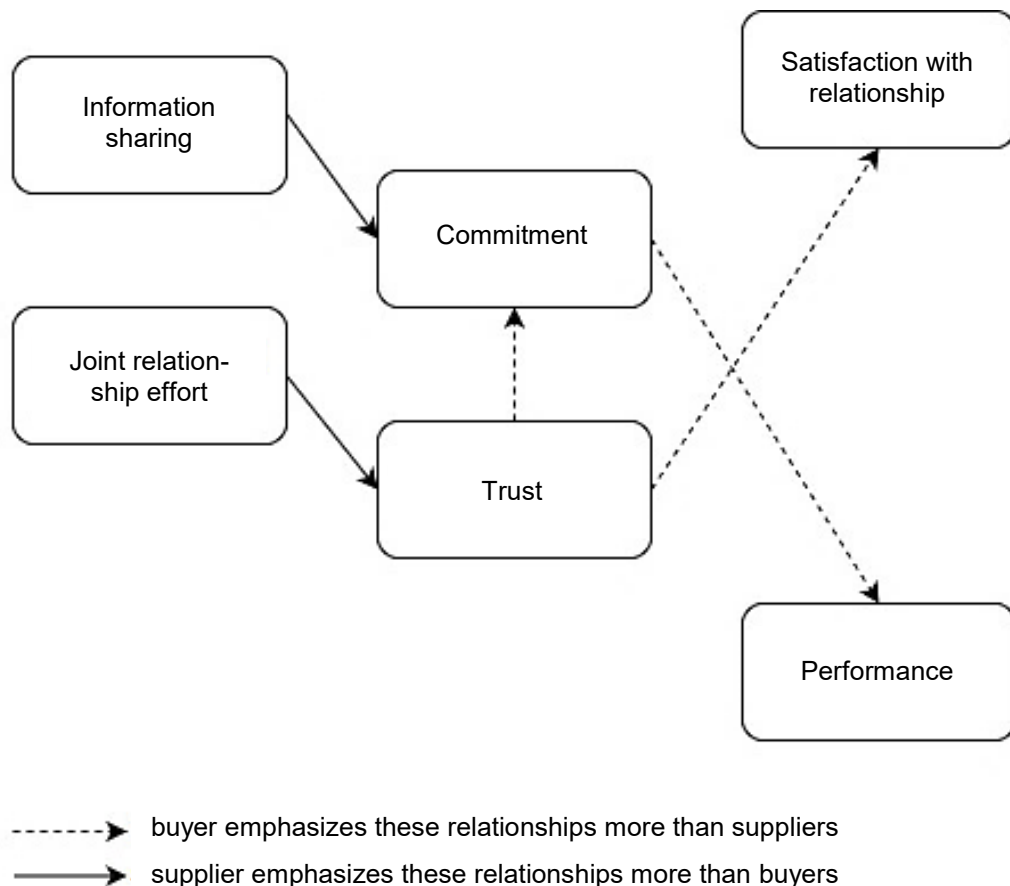
Dedicated investments are related to relationship success. These investments refer to investments that are dedicated to a specific buyer or supplier and made by a buyer or supplier. The dedicated investments are said to lead to the trust providing concrete evidence that a partner can believe, cares about the relationship and is willing to sacrifice for such investments. The information sharing suggests that critical data is transmitted to the relationship partners of actor (Mohr and Spekmann, 1994). The information sharing a critical factor, if the actors understand the benefits of collaboration. Getting a successful partnership requires collaboration between actors in triad, both in problem solving and in planning and coordination of activities. So, this joint effort, as problem solving and activities planning can be called, is strictly related to information sharing. Joint efforts could be for example, target setting, problem solving, measurement of performance and planning. (Nyaga et al., 2010)

Trust is a major determinant of commitment in relationship (Morgan and Hunt, 1994). Also, according to the conceptual model, collaborative activities affect to key mediating variables such as commitment and trust. The creation of commitment and trust become even more important than expected when the firm make dedicated investments. It makes them more vulnerable. The trust makes the dedicated investments less risky and reduces the uncertainty of transactions when it is difficult to put contracts into practice. In addition, trust and commitment among actors in the supply chain have proven to be the basis for successful performance. Commitment refers to the willingness of collaborative partners to exert effort on the behalf of the relationship (Mohr and Spekmann, 1994). It ensures that the relationship of collaboration continues at least for time being. Commitment also brings mutual benefits in the relationship between the supply network or the triad. Previous research has shown that trusted suppliers and buyers are also more satisfied with the relationship and they are investing more in ensuring its continuity. In a way, trust also affects commitment because commitment means also vulnerability. And for the parties to have a courage to find themselves in a vulnerable position, there must also be trust between them. (Nyaga et al., 2010)



The trust and commitment affect to the relationship outcomes that are satisfaction with relationship, satisfaction with results and performance. It has also been noted that the stronger relationships between suppliers were united with better performance and satisfaction. A satisfaction is defined as a positive measure in its entirety or when evaluating the firm’s employment aspects with another company (Dwyer et al., 1987). In addition to satisfaction, the performance improvements need to be also taken into account as they directly affect the purchasing firm. These improvements are due in particular to the relationship between the buyer and supplier. (Nyaga et al., 2010)

And, based on the research, a comparison has been made between the perceptions of buyer and supplier relationship. These perceptions are relatively consistent and support the presented conceptual model. On the other hand, there are five significant differences between the viewpoints of the buyers and suppliers of these survey samples. These differences are shown in Figure 31. (Nyaga et al., 2010)



**Figure 31.** The differences between the viewpoint of buyers and suppliers. (Nyaga et al., 2010)

In Figure 31, the relationships that buyer highlight more than suppliers are described in dashed line and in a common line are described the relationships that suppliers highlight more. First, the impact of information sharing on commitment is more important for suppliers than buyers. Previous research confirms also this view that information sharing affects suppliers and buyers differently (Whipple et al., 2002). Information sharing may help the supplier to provide services or products effectively. And a buyer sharing important information expresses commitment to the supplier. That is why suppliers are likely to be committed to relationships with buyers who share information. Also, the impact of joint relationship effort is more important for suppliers than for buyers. Suppliers are expected to be more confident in the relationship between buyers in target setting,

performance measurement, problem solving and joint planning. Implementing common function provides a way for suppliers to share concerns, expectations and need about the relationship. In addition, the confidence of suppliers can also be improved by buyers who, with a joint effort, seek to resolve the issues raised by suppliers. (Nyaga et al., 2010)

Maybe a little surprisingly, trust has a greater impact on commitment of buyers than suppliers. Buyers are more likely to be more committed to reliable suppliers, because they trust suppliers to offer better services, products or contract terms. Despite the fact, that suppliers are also committed to a reliable buyer, suppliers understand that commitment does not require better performance. (Nyaga et al., 2010) Trust-building measures may also prove to be more difficult for suppliers (McCutcheon and Stuart, 2000). Suppliers know that if expectations of price, performance or service are not met, buyers can look for alternative suppliers. In the end, it is all about business “pay off”. So, the impact is greater for buyers than suppliers, because trust increases commitment for both actors. In the end, the impact of trust on satisfactions with relationships is more highlighted for buyer than suppliers. This may reflect inequalities between suppliers if they feel that buyers are not proportionate to their suppliers’ confidence. So, the research and Figure 31 shows a split of expectation between buyers and suppliers. Suppliers are concerned about the relationships they can use to improve their performance and provide the expected services to the buyer. And buyers are more concerned about paths impact performance directly. (Nyaga et al., 2010) In Figure 31 can be seen that buyers focus on relationship outcomes thus suppliers focus on collaborative activities.

However, the research shows those suppliers and buyers who are satisfied with their relationships will benefit from investment in collaborative relationships. The collaborative relationships between buyers and suppliers provide benefits to both. All the functions that have been taken to improve commitment and trust by suppliers and buyers, will result in bigger benefits in the relationship. In summary, it can be said that the antecedents of trust, i.e. information sharing, joint relationship effort and dedicated investment, are most important for suppliers. While, the outcomes of trust, i.e. satisfaction and performance, are most important for buyers. So, it needs to be highlighted the activities that build trust. (Nyaga et al., 2010)

### **3.3 Collaboration between competitors**

The old saying “keeping friends close and enemies even closer” applies also to collaboration between actors. Because it has been noticed that the tendency to collaborate with competitors has increased measurably. Competitors must be considered as serious, good collaborative partners. They operate in the similar context so they might provide relevant knowledge about same issues. (Kim, 2018) And because competing firms face similar pressures and devote relevant resources, can collaboration between them enable firms to acquire and create new knowledges and innovations (Gnyawali and Park, 2011). There can be distinguished two different types of collaboration between competitors, known as competition-based collaboration and collaboration-based competition. (Kim, 2018)

A tacit collaboration can be developed between explicit competitors when firms or actors compete at the same time in multiple markets or products or place. This kind of situation has been developed a phenomenon “mutual forbearance”. It means decreasing competitive intensity between competitors through intimidation and familiarity. Competing in multiple markets can increase the contacts between competitors and thus, extending the mutual recognition of interdependency of competitors. When the existence of multiple markets contacts increases, increases it also the possibility of countermeasures when the firm or actor is attacked. Then the counterattack may not focus only on the attacked market but also the markets where both counterattacking firm and attacking firm act. There has used as an example from personal product industry. If

Procter & Gamble has an aggressive advertisement campaign in toothpastes, can Unilever respond to it with a campaigning shampoo. However, this possible retaliation can cause more negative consequences for attackers than a simple retaliation in one market could cause. So, if the potential loss for attackers is higher than that of counter attacker, can the counterattack occur in the multimarket. Caused by this fear to retaliation, competitors in multiple markets will start to collaborate by restricting their competitive behaviors. That is mainly the reason why multimarket competition can be handled as a type of cooperation in which collaboration is developed through competition. (Kim, 2018)

Nonetheless, the competition plays also a role in collaboration. Collaborative relationships are formed by value appropriation activities and value creation. (Kim, 2018) Value creation refers to the creation of common activities such as product design and distribution and technology development (Ghosh and Morita, 2012). Value appropriation is another main aspect in collaboration which denotes the sharing of created value. It is one-side, because firms with capabilities have private interests that are not available to their partners. Competition can occur also in successful collaboration because situations between firms, their subcontractors, their suppliers etc. will change. It can create new forms of collaboration between new firms. So, this collaboration based on competition can be also type of co-opetition in the sense that competition continues in collaboration between non-competing partners. According to the article, competition and collaboration are the basic relationships between firms, which occur almost in every company at the same time but in different ways. (Kim, 2018)

### 3.4 Open and closed systems

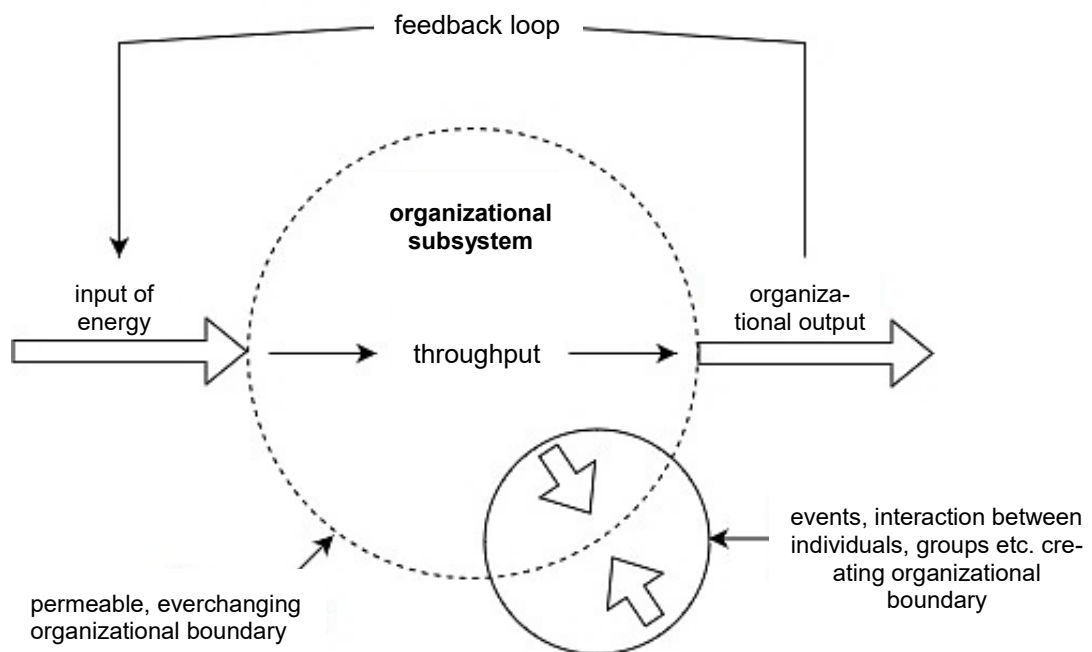
How to define a system? A group of interacting units or elements that have a common objective is defined as a system. These systems are generally categorized as open and closed systems. Open systems refer to relationships that interact with other actors, other systems or the outside environment (Koskinen, 2010). In contrast, closed systems, on the other hand contain little interaction. Organizations and triads are examples of social systems. Although all system has boundaries, they are hardly visible in social systems such as organizations. Because of the interaction between open systems, their boundaries are much more flexible than closed systems. The boundaries of closed systems are rigid and almost impervious. Closed systems see organization as independent of environmental impacts. The closed system seeks to exclude competitors, suppliers, distributors etc. and its approach is to describe the organization as a system of management, material, technology, personnel or equipment. (Heil and Droege, 2006)

An open-system perspective views that an organization is part of the environment in which it is located (Heil and Droege, 2006). The open-system perspective regards at an organization as a whole that takes inputs from the environment, transforms them and releases them as outputs (Koskinen, 2010). Organizations' open systems admit that organizations are dependent on their environment and that these environments also depend on organizations. Furthermore, the open-system perspective does not assume that the environment remains unchanged in contrast to closed-systems. The change is seen as a rule rather than an exception. (Heil and Droege, 2006) Change is inevitable both in organizations and in triads, so they can be assumed to be open systems like almost all modern organizations.

Open systems are capable of taking care of themselves based on resources that produce the environment. This idea is necessary for the viability of the system. It has been said that all systems have boundaries, but boundaries of open systems are quite flexible. (Scott and Davis, 2015) The boundaries put the district of the system's activities (Koskinen, 2010). Open systems expend energy in boundary maintenance. But it is important that energies are devoted to that kind of activities that span boundaries and redraw them. However, setting boundaries is difficult because of the openness of organizations and decision-making may even seem arbitrary. Individual people

are not within boundaries of organization, just particular behavior or activity. Ultimately, actor's determination of whether a system is open is itself a matter of how the systems' boundaries are defined. (Scott and Davis, 2015)

When an organization is moving in a strategic direction based on social responsibility and corporate environment, it faces opportunities in addition to increased risk. Opportunities can be productive but on the other hand, they disappear quickly. It has been therefore necessary to develop an alternative approach and model to understand the relationships between the external context of the organization in which it operates. The aim of responding to the struggle with rapid change is to offer an alternative approach, the idea of an "open system approach" to the organization. The open system approach to organizations is based on theoretical work from the 1950s by Ludwig von Bertalanffy and General System Theory. He developed the basis of an open system theory, based on which researchers developed the idea of an open system model of human organization. This model is represented in Figure 32. (Andrew, 2015)



**Figure 32.** An open system model of organization. (Andrew, 2015)

Firms use inputs like labor force, equipment, materials and funds to provide services or produce goods, and sub-systems of firms are designed to attain these targets (Koskinen, 2010). The open systems model will be looked at in greater detail. The organization cannot be self-sufficient, so in the open system model the input is energy and it is needed. In throughput the processes that are related to an organization, transfer the input into output. They can be managerial, administrative or resourced based. And an organizational output is the desired outcome of the process, for example the product of an organization. However, it can also be a negative output, like inefficiencies, pollution or discontent amongst staff. (Andrew, 2015)

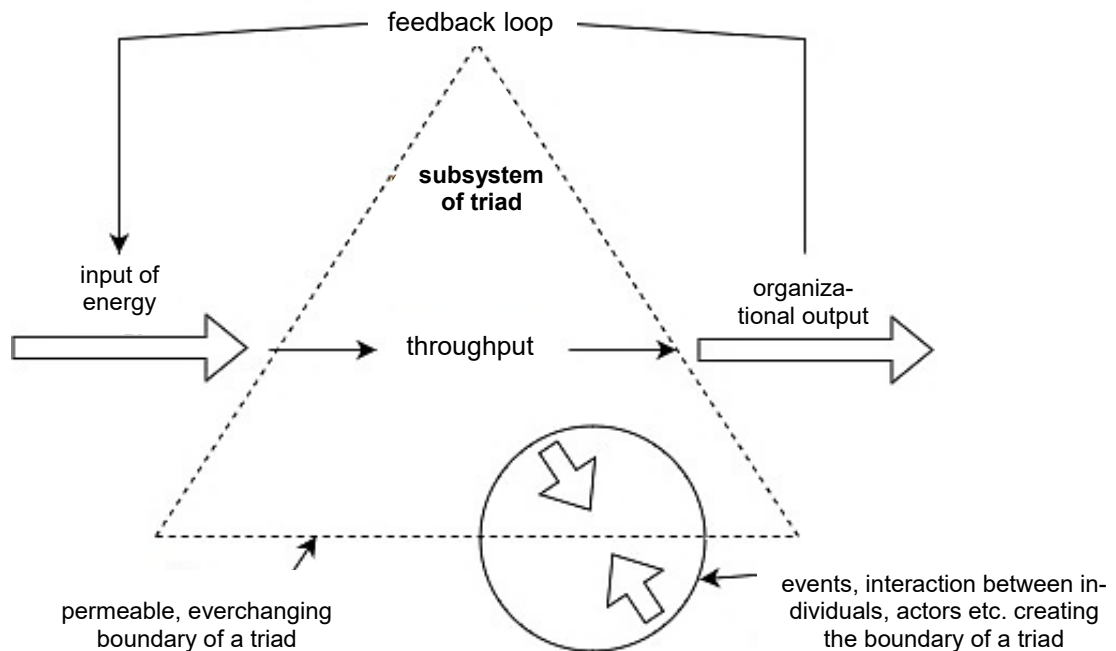
The boundaries of the organizational subsystem are described by a dashed line in Figure 32 because they are not material or concrete. The series of interactive events between the members of organization create the new boundaries (Driver, 2006). Therefore, there are different events at the interface of the systems that are formed between and among the people. And while there are no visible boundaries, it is important for the organization to strike a balance between environmental conditions and throughput processes. The feedback process provides information to the organization of environmental change and how successful its output is. (Andrew, 2015) Positive feedback is a prerequisite for change, development and growth. Instead, negative feedback helps maintain stability in the system despite external changes. (Koskinen, 2010) Openness

of feedback is essential. Through openness, communication and interaction, it is important to share the organization's own norms and values. It should be noted that the organization can achieve the same target in different ways. It is not a closed-ended community but a very open and transparent social structure. (Andrew, 2015)

### 3.5 Triad as a booster of collaboration activities

The triad can be said to be a social and an open system because the relationships that exist are influenced by other actors. In the previous chapter, Figure 32 depicts an open system model in the organization. The same type of open system model can be used to outline the triad with the help of the reviewed theory. The subsystem of triad is presented in Figure 33. First, a triad and its actors need an input of energy because the buyer and its suppliers need some external impulse. That impulse makes a product or service meaningful. From the open system model, a throughput is created to the triad model to respond to the common target of actors. Achieving this target requires collaboration and it can be seen as an output of triad at the same time. From the point of view of collaboration and triad, the result is stronger and more confidential relationship of collaboration. Of course, the product or service ordered from outside is provided also as a concrete output.

Probably buyers or customers will give feedback of the final product to triad actors. As a result of the feedback, they can agree on possible changes or improvements for example in production or in the supply network. At the same time, the feedback loop increases the interaction within the triad. On the other hand, however, because the boundaries of the triad are not concrete or drawn, may feedback affect the shape of the boundaries. The boundaries of the triad are also affected by events at the borders of the triad, as well as interaction between actors and individuals. Various relationships between actors have been presented in the thesis, where the individual event have led for example a buyer to change a supplier or suppliers have begun to collaborate with a buyer without knowing. But there is no need to change the borders if the meaning and purpose of collaboration are clear to all triad players.



**Figure 33.** An open system model of triad.

So why can it be said that a triad boosts collaboration? Closer relationships and improved information exchange will enhance the performance of supply network (Whipple and Russell, 2007). Triad is a system that has been formed between three actors, but it has not concrete boundaries. Three actors in a triad could have a same target and then they are probably willing to play to the same goal. Because of that it can be thought that the relationships between actors are close. There exist several free players outside a triad, but something gets a certain trial to form a system and a triad between them. Probably the reason is the smooth collaboration between them.

Collaboration is based on among other things like mutual trust and respect, commitment and belonging (Kac et al., 2016). Trust and commitment are obviously important parts of confidential relationships. And they are also important part of relationships between suppliers in triad. According to Table 1 the collaborative relationships between suppliers are trust-based. Actors in a triad must share critical and even secret information for other actors, so the trust must exist. Information sharing is also linked in commitment.

Even if a buyer and suppliers in a triad are willing to collaborate, there can also exist competition between them. A friendship has been used as an example when the relationships in a triad have been pored over. And it can be used as an example also in competition point of view. In strong and long-term relationships, there may be disputes, disagreements or competitive situations. However, they do not always cause an end of relationship. Friends can find out a situation and continue with concord. The same is true for collaborative relationships. The growth of collaboration between competing firms has been even noticed as a new growth.

If a competitive collaboration fails or one of the actors in triad is otherwise unprofitable, an open system will allow the exchange of partner. Because the boundaries are see-through, more productive actors can be seen also from outside a triad. In some cases, for example, changing the supplier may increase collaboration in triad. The triad is quite small network and that is why working collaboration demands seamless work of three actors. Even if individuals can affect on the boundaries of a triad, may the profitability affect even more.

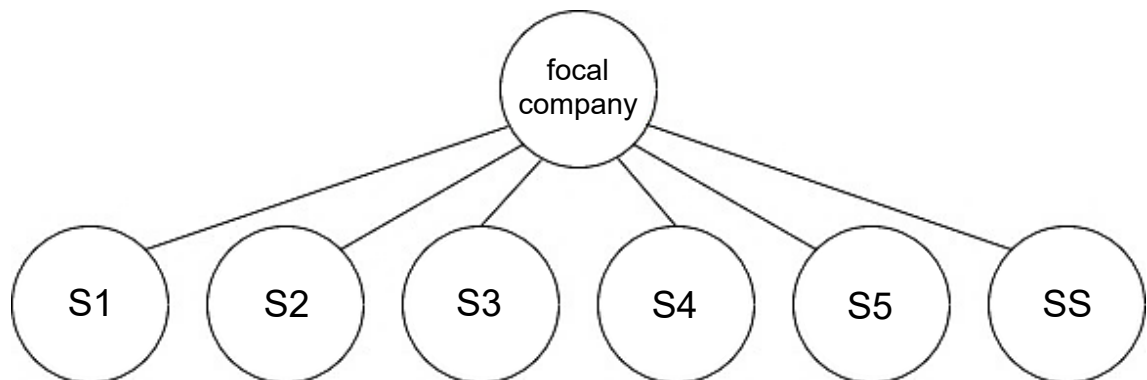
## 4. RESEARCH MATERIAL AND METHODS

Empirical research is still examined to support or not support the theoretical part. The interviews have been done to the Rebus research program (Perho 2015) and they are now used as a research material. The material to be examined has thus been collected through interviews. After that the material has been transcribed, so it can be used also in this thesis. There have been four interviewers altogether and the interviews have usually been made in pairs.

There has been interviewed employees from the focal company and its six suppliers. The idea was to initially share the focal company's responsibility for the tasks and get its subcontractors to communicate with each other. The interviews aimed to clarify the parties' views on the potential of the triad. The interview questions concerned trust, commitment, collaboration, relational behavior and power and responsibility. These properties have a huge effect to the relationships in triad and that is why it was vital to measure them. The hope was to find the current shortcomings and the development ideas related to triadic relationships. (Perho, 2015) The interview questions of interviews are represented in the Appendix A.

The focal company had a need to develop business practices in its supply network. The target was to avoid conflict situations and unnecessary waiting times by achieving better coordination of support services. In this case, it was thought that triadic network business model would have offered the solution for achieving the common targets. So, the focal company selected six main suppliers who participated in study and in interviews. (Perho, 2015)

Before the case study and interviews the relationships between the focal company and key suppliers were dyadic. These relationships can be seen simplified in Figure 34. The purpose of the interviews and research was to find possibilities to form these dyadic relationships to triadic relationships. All six subcontractors had own role and field of business. The focal company kind of offered and coordinated the service through its suppliers.

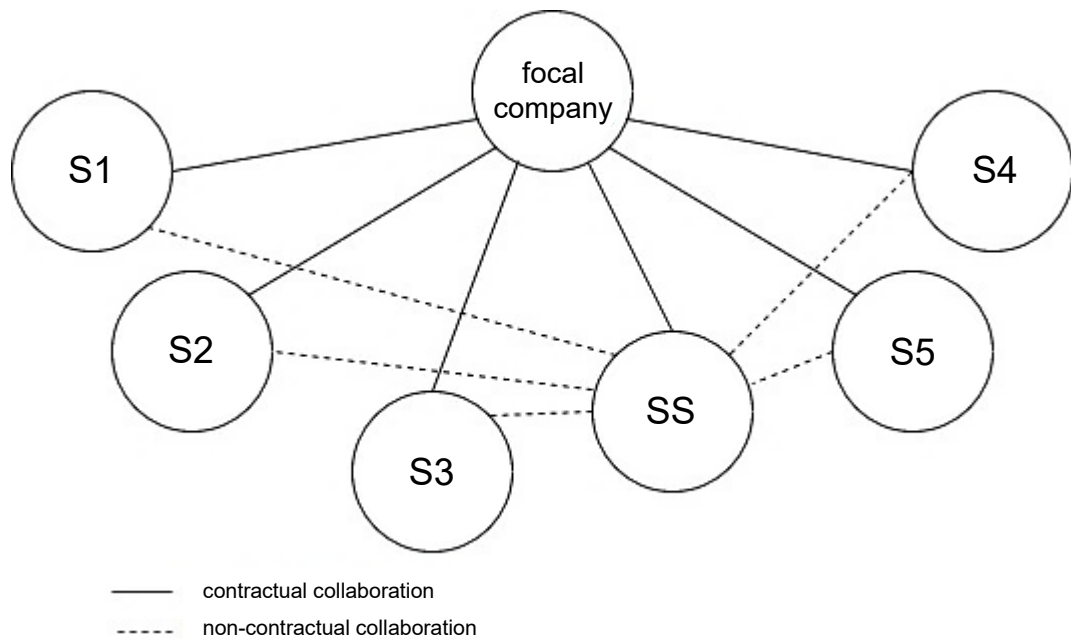


**Figure 34.** *The dyads in case selection.* (Perho, 2015)

The interview has been conducted so that from the focal company have always been interviewed a person who is responsible for the supplier's corresponding field. For example, if a subcontractor was responsible for electrical work, from the focal company had been interviewed in this case a manager who was responsible for the field of electricity. Similarly, the subcontractors have been interviewed those persons who were responsible for the operation and the customer relationship with the company. The positions and number of the counterparty people varied in each subcontractor firm. (Perho, 2015) In a closer look of the results, the focal company is also referred to as FC, and each supplier is abbreviated as S1, S2, S3, S4, S5 or SS based on the interviewed company they represented.

The S1 was a stand firm. The S2 was responsible for steel frames, S3 for pipes, S4 for painting and S5 for electricity. The supplier called SS was responsible for the inspection and offered supporting services. And that is why the SS is therefore related to all other suppliers, when the relationships have been formed as triadic. The triadic relationships are presented in Figure 35. There were contractual and non-contractual relationships between the actors of a triad. The main difference is that the suppliers had non-contractual relationships with each other for the benefit of collaboration. (Perho, 2015)

In the beginning of the interviews, the structure of a triad was presented for interviewees. It is not possible to say if that has affected to their answers and thoughts about collaboration then and in future. Also, it is known that people do not answer in the same way when they are responding. Some people may tend to center their answers to midpoints while others tend to use the extreme ends of scales. And naturally also motivation, emotions, personal issues etc. may affect the responses. (Perho, 2015) However, looking at the interviews, it can be said that, in principle, collaboration between the different actors has worked well. In the next chapter will be gone through the interviews in more detail.



**Figure 35.** *The triads in case selection.* (Perho, 2015)



## 5. RESULTS AND ANALYSES

When the interviews have been done the part of the results are reported in the thesis of Mika Perho (2015). In this thesis, the interviews are specifically investigated from the perspective of forming a triad. Since the thesis has been made the acquaintance of the supplier-supplier relationships, the archetypes found by Perho are raised up on the basis of interviews. One of the suppliers did not see any reason to collaborate with the supplier of suppliers (SS). However, it was willing to collaborate with another supplier, as it would benefit both of them. It was the conflicting archetype. The rest of the relations between suppliers were either transacting or networking archetypes. At no time did suppliers compete with each other, so there was not actual dog-fighting archetype. (Perho, 2015) However, it is also a focal company's point of view to create a triad, so the interviews must be looked one by one.

### 5.1 FC and S1

The first pair of the interviewees was the person from the focal company who was responsible for the stands and the firm that provided the stands. Collaboration between these two actors had been continued several years and there has been suggested that collaboration should continue also in future. The focal company has set the targets for this collaboration.

The employee from the focal company has said that there were not any problems with trust between the subcontractors. "My trust is based on the thought pattern concerning work." Instead, the reciprocity of the relationship was based on partnership. "That is not a charity. But I prefer the long-term relationships." Longer relationships require commitment and the subcontractors were committed according to the focal company's representative. The focal company thought that there was communication between the subcontractors.

From the point of view of the focal company, it has been said that probably the thought about forming a triad should be dismissed. The main reason for that was the budget because it would have caused new costs. On the other hand, communication between the suppliers could have contributed to information about work. Now the situation was that that one supplier basically just came to make its own part of the work and left the rest to another supplier. "It is feared that the budget and activities will go out of hand. The idea is that action should be in the hands of someone, but at the same time there should be collaboration."

The supplier discerned also that collaborative relationship with focal company has developed in the progress of time. The employee from the stand firm said that all suppliers have committed to work together towards common targets. Also, from the stand firm's opinion the subcontractors were committed and relied on each other. "Collaboration is fluent, it is not slipping."

Common targets were known but they have not been written down anywhere. Supplier 1 has said that subcontractors were self-imposed. "We are looking for solutions and cost savings of all kinds." Nevertheless, according to S1, the focal company had a main role as creating collaboration between subcontractors. It thought also that forming a triad would not have caused changes, because the focal company would still have been a coordinator for stands. On the other hand, "current arrangement is good and operational" has been said.

## 5.2 FC and S2

The next pair accounted for the steel frames of supply network. There has been interviewed the production manager from the focal company and the person from the firm which provided the steel frames. Collaboration between them has also continued for several years. It has based on trust, which has been based on actions. The project manager thought that trust was at a good level. "But if the pattern is expanded then trust must be – trust must be." The focal company felt that the subcontractors were self-imposed and committed to collaboration in any case. "They are working from their hearts. They have understood that when everything flows in the focal company, it is also flowing in their firms."

The production manager had a strong view that the work has been done with the rules of the focal company. The person has said that probably collaboration between the subcontractors could work, if they would benefit from collaboration somehow. The first fear, if they had modified their dyadic model into a triadic one, was that the solid trade would have been occurred. If it had been started to haggle about price, would it also have been haggled about safety issues?

Even if collaboration has continued several years between this pair, the supplier 2 had only given a tacit approval to common targets. Common targets were again known but they have not been written down like they were not in the pair FC and S1. Regardless of literary targets has not affected on functionality of collaboration in steel frames. "The schedule and quality have remained same and relationships between persons are extremely good". That activity has also helped to create trust between the focal company and S2.

Enterprising spirit has also increased trust. The actor S2 has been quite open-minded about collaboration between subcontractors. "There is not any problem. It is just to get the actors from every division together to ponder the means how to reach the target, before the project starts." The steel frame firm would be prepared to adopt a more independent and self-directed operating model, if needed. "Being self-imposed has already availed in gaining and maintaining trust." S2 saw also that moving into triadic model would not affect so much about their work. Mostly, the focal company as an in-between would default.

## 5.3 FC and S3

The third interview group was the pipe firm and the project engineer from the focal company. Their collaboration has been underlying by several projects and years. From the project engineer's point of view, trust has been based on delivery reliability. "Trust is also based on getting things in order with this group." And on the other hand, the pipe firm reported truly if there cropped up problems with a schedule or a lack of crew. The focal company said that the targets have been accepted together. The idea has also been to expand collaboration between them and S3.

From the point of view of the project engineer, it might have been possible for the subcontractors to work from time to time in a self-determining way. "Pre-manufacture requires a lot, but it could be possible. But the installation cannot be performed self-directed. There must be a referee in the place who puts the jobs in order in overlapping cases." According to the project engineer, the formation of a triad was challenging because there acted many actors in the same workplace. "Building a triad would not have been enough, because ten actors should be involved in the network." And on the other hand, project engineer said that "the job must not be democracy". "The boss should say what to do and how to do it. Networking is needed in all activities. Nowadays, there should be some other way than to get the thing through by shouting the most."

Again, collaboration between the focal company and S3 had continued several years. The project manager from the pipe firm has stated at the beginning of the interview that it will include some challenges to get the three actors work together. The interviewee said, nevertheless, that forming a triad could help to keeping up with schedules and situations. The triad could also aid

for reacting faster. In the project manager's opinion, trust between the subcontractors is based on personal relationships. Trust in the focal company has been sovereign even though it has decreased a little because of foreign workforce and adversity of communication. "Trust is based on agreed situations and abiding by them. The firm is standing behind its words."

The project manager from the pipe firm has been assured that the subcontractors had common targets. The targets have not been accepted together. "It could be, that the subcontractors would arrange a meeting and get to know each other. The meeting could also highlight our interests." The pipe firm has also suggested that they could arrange stand by themselves. The S3 has also said that the subcontractors were communicating among themselves horizontally and vertically. The project manager has said, that there should have been arise communication between the focal company, the subcontractor and the stand firm. "Some system could be created for ordering stands and that could connive fruitful collaboration. Forming a triad means that there should be more talk with three actors. The triad would be the best blueprint and I think that it is more than possible. It demands anyway more for the focal company because it must serve as a negotiator."

## 5.4 FC and S4

Next had been interviewed the person from the painting firm and the production engineer from the focal company's painting department. The project engineer has said at the beginning of the interview that forming a triad could help only for leading. There have been couple of painting firms working with the focal company but collaboration between particular painting firm has started in the 1980s. Collaboration has been based on projects.

The project engineer discerned that the painting firm counted upon the stand firm but, on the contrary, the situation was not the same. The project engineer has been experienced that all the subcontractors have been relied on the focal company anyway. Trust between them has been based on promises and keeping them. It has also been based on experiences.

Nature of collaboration varies between the painting and the focal firm. "The painting firm aims to long-lasting collaboration, but the focal company does not. The reason may be cost efficiency. Both of us look out for number one. I don't think that we are in the same boat. We are going to the same direction but in different boats." Nonetheless, once again the targets have been accepted together. Communication between the painting firm and the focal company has been daily and consensual. From the point of view of the project engineer there has not been communication between the subcontractors. If there have been existed contradiction, these situations have been solved with money usually. The cause of a fault or a guilty was wanted to find out so that it would be clear who was liable to pay damages.

Even if the S4 took some responsibility about its own action, was the coordinator still the project engineer from the focal company. Probably the suppliers could be authorized to act in a self-directed manner. "I believe that it could succeed quite fine. Maybe it would not be an excellent performance at the first time, but still." There was not collaboration between the subcontractors and "there is no need to be". "Forming a triad model would change job descriptions so that subcontractors would be obliged to handle stands themselves but from a particular supplier. It might be easy for the stand firm because it could work with everyone." However, the use of the particular painting firm was depended on the price difference caused by the tendering procedure.

The person from the painting firm didn't find out any reason why the subcontractors could not have counted upon each other. "Collaboration works and given plans are done. Also, the focal company has usually always kept the promises." There was not mutuality between actors because kind of the painting firm was demanding more. The painting firms asked the stands and when the job was done, they asked to collect the stands. "We are only interested that the job is done."

The S4 experienced that the targets have surely been set together. "Schedules and corresponding issues come from the focal company." But communication between the painting firm and the stand firm did not produce anything in black and white. In either case, there was not too much communication between the suppliers. The interviewee thought the creation of personal relationships as important. "It is important. The external relationships between the supply chain management are on the decline. There was an floorball team. It was a fun recreational facility."

"Collaboration between the suppliers could be created by common rules. There should be down in black and white who is responsible for what." A triad model would not cause changes because everything is going through the focal company. "I cannot say does the triad model cause any benefits. Could the work be more flexible and faster?"

## 5.5 FC and S5

The fifth pair of interviews was the electric firm and the section chief from the focal company. Collaboration between them has continued more than 17 years. The representative of the focal company has said that there have not been any problems with confidence. "They rely on us. It can be seen in many ways, for example we have the stuffs, keys and containers." It has also been said that reputation was fine. "This cannot be compared to normal electrical installation. Conditions and postures are difficult." The section chief has said that the relationship between them includes solidarity. "We are always in the same boat towards customers. We sort of answer for works of the electric firm."

The chief has viewed that all subcontractors have pledged to common targets. On the other hand, the targets have not been accepted together. "The agreement defines a schedule, quality, work safety and other compulsory issues." The focal company has not been bonded to the electric firm because tendering was mandatory according to procedure. Regardless, the relationship between the electric firm and the focal company was probably more solid compared to other subcontractors. "We skip production, so the relationship is more fixed than usually. Communication is daily." Communication between the subcontractors has worked and there have been no complaints. Instead, there have been occasional conflicts. They have always been solved with money.

From the focal company's point of view, fluency of collaboration with the electric firm was outstanding. Collaboration between subcontractors was caught by the focal company. "I have no doubt that they would not collaborate if they had the opportunity." Using the triadic model would require a contractual structure. "It requires clear contractual guidance. Another subcontractor cannot bid another. The work would be done together as subcontractors." Liability issues were also come up.

Trust between the subcontractors was on the high level also from the S5's point of view. "I rely on the subcontractors totally, there is no doubt about that. And, of course, we rely on the focal company." Trust has increased because of electric firm's knowhow and criticality of schedules. The person from the electric firm thought that trust was based on quality and safety issues.

Otherwise, the electric firm thought that things were handled wisely and among skilled people in the focal company. "It is one of our most pleasant customer relationships." It was felt that the supplier was committed to the common goal. On the other hand, the targets have not been gone through together. "Neither have they been approved because they are self-evident." It was also obvious that the price was the prerequisite. "Price competition takes place every time."

The electric firm's employee opined that the suppliers could operate self-directed. "Yes, it will work. It is up to the focal company whether they get added value from self-directedness." The changes that the triad model would cause were perhaps difficult to perceive. "This is one-time, and breaks can be long. If we are investing in forming a triad, there should also be something at intermissions. I would also see more collaboration on a drafting side."

## 5.6 FC and SS

In the last interview pair was the people who were responsible for quality control. From the focal company that person was the chief of quality control and the employee from the inspection firm. The focal company used three different subcontractors in their inspections, but this particular inspection firm had been chosen because of their knowledge and conspicuousness. The focal company thought that collaboration with the inspection firm has turned out well earlier. "It is easy to access them. The threshold for asking help is low. And they have always helped." Trust was based on experiences. The inspection firm has always provided the desired services.

"The suppliers are committed. And we are also committed theretofore price is competitive. The only thing is that if the inspection firm overprices itself." The focal company has said that it would like to continue collaboration with the inspection firm because it has offered good services. The common targets have not been set together. "Not really that we were sitting down and agreeing on goals. Setting the goals is to get people to and from the site."

The chief of quality control discerned that suppliers would like and be able to act self-guided. The chief believed that creating personal relationships is important. And it is also a part of the work community. Employees from the firms have also organized events outside the work. Perhaps it had also contributed to the horizontal communication of suppliers. The focal company's point of view was that suppliers could operate in a self-directed manner. "Yes, but our work supervision oversees defining priorities. Must go with the rules of our house, it is not allowed to solo." Forming a triad could further the focal company according to the chief of quality control. "It can relieve our own functions, but it negatively affects the whole. On the other hand, if an inspector inspects a stand in a more difficult situation, it makes more sense for the whole."

The project manager was interviewed as a representative of the inspection firm. "The stand firm had nothing to do with us. From our point of view, the company who is responsible for steel frames is a more relevant actor in the triad review." The project manager has said that trust between the subcontractors was self-evident. As well as the supplier's confidence in the focal company. Trust was based on that the work which had been done well.

The SS has engaged to the focal company with an agreement and vice versa. With subcontractors there were not any contracts. The project manager thought that suppliers have a willingness to act more independently. "Yes, the inspection department can be outsourced but coordination would remain with the focal company." Individuals' personal and social qualities were seen to promote interaction. "The suppliers communicate horizontally all the time but vertically less frequently." The project manager's view was that suppliers can be empowered to act in a self-directed manner. "It can be. The main thing is to coordinate. It is the most challenging thing and it needs own overseer." Coordination would be also essential for forming a triad. "In the future, the subcontractors could offer their deliveries to the focal company as pre-checked. This would oblige the focal company to monitor subcontracting more closely. Forming a triad requires also good guidance on quality and requirements. However, the biggest challenge is coordination."

## 5.7 Analysis based on the results

Based on the interviews, collaboration between the actors in a supply network was basically working. Particularly the subcontractors seemed to regard relatively positively to other suppliers and to the focal company. Collaboration between many dyadic relationships in the supply network had been continued over years or even decades. So, the actors were familiar with each other at least at the business level. Importance of business has anyway come out in the interviews. However, even if the focal company was satisfied with the supplier, things were done under the leadership of business. The suppliers acted as underdog because if they priced themselves too high, they were easily interchangeable. This business thinking supports the idea of the triad's editable

and fickle boundaries. Forming a triad between three actors does not mean concrete borderlines. Some of the interviewees of the focal company may even were looking for substitutive suppliers, but for the time being, they were satisfied with the current suppliers. The subcontractors were aware of the situation and were trying to keep up with competition. However, a long-term partnership was everyone's interest and target.

The interviews gave the view that the relationship between the suppliers could be classified as a co-opetitive relationship. There was not truly competition between them, but they really did not know themselves very well. A co-opetitive relationship will increase the competitiveness and specially the overall efficiency through material exchange and direct communication (Choi *et al.*, 2002). The analysis of empirical material gives the idea that the efficiency and awareness of network could increase significantly through the mutual communication of the suppliers. According to the Table 3, the supplier-supplier relation archetype was the contracting archetype. The definition of contracting supplier-supplier relationship is that at least one supplier feel threatened to give away business and core competency (Wu and Choi, 2005). The interviews revealed that the suppliers were aware of the evanescence of business, because price competition and pricing were so important for the focal company. If a triad were formed, one supplier SS, would be on lead in relation to other suppliers. So, the archetype would change more towards the networking archetype. The transacting archetype would also turn up because the suppliers would work together to meet the focal company's requirements. Then the suppliers could also understand that they have an equal status between them. The formation of the triad would affect the change of the supplier-supplier relation archetype and would thus unify the suppliers.

Otherwise, the focal company has been responsible for setting the actual targets. The targets have not actually been written up by anyone but nevertheless they are jointly agreed and known to everyone. However, all actors have had a common aim and target. The common, conscious target supports the possible idea of creating a triad. The interviewed suppliers did not see any problem in their mutual relations, in a more self-directed model or in the formation of a triad. As can be seen in Table 6 and in Table 7, the view of suppliers on commitment and trust is stronger than the focal company has. Doubts about forming a triad and its usefulness also come from the direction of the focal company. Particularly worrying is control and organizing if the suppliers communicate more with each other. Someone must be and take responsibility for action. The suspicious attitude seems to be due to the fact that the potential benefits of forming a triad are not seen or experienced.

**Table 6.** Level of commitment compiled from the interviews. (Perho, 2015)

Level of commitment low(0) - high(5)	opinion of focal company	opinion of supplier
focal company - supplier	3.50	3.50
supplier - focal company	3.83	4.50
supplier - SS	3.00	3.60

**Table 7.** *Level of trust compiled from the interviews. (Perho, 2015)*

Level of trust low(0) - high(5)	opinion of focal company	opinion of supplier
focal company - supplier	4.17	4.33
supplier - focal company	3.33	3.83
supplier - SS	3.20	3.50

Trust and commitment are the most important factors in collaboration (Morgan and Hunt, 1994). In Figure 27 has presented the importance of these factors for collaboration and they consist of five factors which are opportunistic behavior, communication, shared values, relationship benefits and relationships termination costs. Based on the interviews, trust was based especially on keeping the schedules and promises. Since the level of commitment and trust were relatively high between the focal company and its subcontractors, it can be assumed that these five factors must also be in order. According to the interviews, communication could be developed the most. Its inadequacy, on the other hand, and especially in between the suppliers emerged in the interviews. Since it is a network, it would be desirable for the actors to have shared values. Awareness of them could, if necessary, be increased through communication. It is difficult to determine the occurrence of opportunistic behavior based on this empirical material. The empirical material does not show signs of concrete relationship benefits if the business itself is not counted as a benefit. And relational terminal costs have been taken into account through the price competition in this empirical material. Based on the interviews can be said that every actor on the supply network knew how much they were able to pay or demand to maintain collaboration.

The negative effect of forming a triad was seen as its impact on the budget and what additional work it would require, for example in terms of control. The challenge for such a construction network is the role of actors. Almost every subcontractors of this network were doing their own job and then leaving the site. Communication was mainly done through the focal company, although there was no obstacle to increasing communication between the suppliers. According to one supplier, the biggest challenge in creating a triad would be to coordinate, which is certainly true. On the other hand, the actors are familiar, striving for the same target and trusting each other, so would the focal company be able to share responsibility for their leadership?

The suppliers and the focal company trusted in their mutual activities, particularly the quality and timetables were generally hold. Challenges were posed using foreign labor, which posed challenges for communication and created uncertainty. In case of the suppliers increase their mutual communication with the triad, the staff and practices of each suppliers should become familiar. The interviews revealed that at least one actor was supposed to act in a certain way, although its policy was a completely different. Increasing communication between suppliers would avoid false assumptions. Since the activities between all actors are committed and confidential, there seems to be no obstacle to the formation of the triad.

The obstacle to the formation of triad seems to be unwillingness. As seen in Figure 29, the development of collaborative buyer-supplier relationships is based on willingness to accept the change. And that willingness is consisting of experiential learning, effective information sharing and communication, positive prior experiences of change and similarities in technologies and in-

dustry (Greenwood and Langfield-Smith, 1998). On this basis can be said that there is an opportunity to develop collaboration between the focal company and its subcontractors. At the same time, there is also a possibility to form a triad between them. It is a willingness to accept the change that it will bring with it in terms of organization, control and responsibility sharing. The effective communication between the subcontractors and the focal company is also required to maintain trust. It is important to note especially when the subcontractors want to expand focal company's changes. Then it is necessary that the focal company dares to try the change to the original arrangement.

## 5.8 Triad as a booster of collaboration

Based on the theoretical part, it can be considered the idea that does the formation of a triad contributes to collaboration. After examining the empirical material, the feeling was that from the focal company's side the idea of the triad and its potential benefits was considered to be cumbersome because it could increase both costs and workload. The subcontractors seemed to have more sympathy to the idea of increasing communication between them.

The suppliers believed that other suppliers were not necessarily aware of their policies or work descriptions. The reason for this in a network like this is precisely the project-like nature and the step-by-step functions. One of the subcontractors suggested in the interview that it would be good if a person in charge of a task from each company would attend a joint meeting. The meeting could clarify what one's work involves and how each supplier believes the task could be done. On the other hand, the question asked by an employee of focal company is whether the triad would suffice because there are several suppliers? Initially, however, the formation of the triad has been started to be examined through the inspection firm, as it had to check each supplier's workflow. However, increasing collaboration with the inspection firm would help to manage situations and timetables.

**Table 8.** *Thoughts about collaboration compiled from the interviews. (Perho, 2015)*

Collaboration low(0) – high(5)	easiness	importance in future
focal company - supplier	4.17	4.67
supplier – focal company	4.33	4.67
supplier - SS	3.20	3.40

In Table 8 is shown the network's view of collaboration based on the thesis of Mika Perho (2015). It can be seen from the figure that collaboration between the suppliers and SS was not as easy as collaboration between the focal company and its suppliers. The same thing can be seen with the idea of the importance of collaboration in the future. According to the interviews, collaboration between the suppliers and SS was not so important. The results are even somewhat surprising if it has been previously stated that SS is in relation to each supplier as an inspector. Based on Table 8 alone, one could say that the relationship between the suppliers is clearly the weakest in the network and its development would probably benefit the entire network. And that is exactly what the triad is all about.

The focal company may be afraid of losing control because it is clear that in such an entity someone must take the lead. However, all suppliers clearly experience all the activities, with or without the triad, going through the focal company, so it will hardly be a problem even if the triad



is formed. However, the focal company would retain responsibility and organization. The subcontractors and some of focal company's interviewees felt that the triad could be more than possible. So maybe it should be started to think does there exist any reasons why creating a triad would not promote collaboration? Because, as someone said in the interview, "there should be some other way to get things done than by listening to someone who is just screaming the hardest". And if it is wanted to get rid of the thought that by shouting hard it is possible to get what wanted, the triad is a good formation. It increases conversation, not shouting.

Previously, it has been suggested that the triad and its actors need an external impulse, which could be a customer order in this case. Actors have a common goal, and order or impulse, to which they all play their part. Achieving this target requires collaboration between actors, so it can also be seen here as one of the final products of the triad in addition to the completion of the actual customer order. If all actors had clear, shared and agreed goals, then collaboration would be stronger and at the same time the end product would be stronger. In this case, the feedback loop could be seen as a communication channel where the actors could give feedback on the smooth running of the project after it. Feedback could develop collaboration for the next projects, while encouraging the continuation of collaboration with specific actors. On the other hand, collaboration is based on trust, commitment and respect. In this case, every actor has a view that the realization of these qualities is important to everyone. Triad could further strengthen these.

## 6. CONCLUSIONS AND DISCUSSIONS

The purpose of this thesis was to find an answer to the research question, “How does the triad boost collaboration between the actors?” The research question was approached through a theoretical review, which was then based on the empirical material. The theoretical review is based on scientific articles and literature published in various decades. Definitions and meanings of business, collaboration and triads have remained the same over time, so we can say that the sources are still relevant.

The empirical material has been collected through the interviews, done for the Rebus research program (Perho 2015), where the questions have been addressed as a broader entity for only one industry. So, the observation they have made may not be directly applicable to all business-to-business relationships or relationships in the triads. However, the interviews themselves are comprehensive and reproducible, so the same questions could be used for a different target group. Thus, the answers obtained could be compared to different industries.

However, the empirical material must be treated with some criticism. First, the concept of the triad is not necessarily familiar to all the interviewees. Therefore, the answers to the triad may not necessarily be considered as straightforward. Secondly, the interviews raise the awareness of suppliers about the subordinate status, so they have “dared” to answer truthfully. Or have they answered the questions as they assumed, they should answer. In general, the problem with the use of interviews is that it is difficult to investigate people’s response behavior. In addition, a large scale of 0-5 has been used in this empirical material, but each interviewee determines the numerical values of the scale in its own way. Someone may prefer to use extreme values, and someone else prefers the middle values. In order to provide a more complete picture of the results of empirical material, interviews should be repeated for more supply networks, whose responses and results could then be compared.

How does the triad boost collaboration between the actors? In summary, by improving communication between the actors. Since the formation of a triad is not about the creation of concrete or permanent boundaries, the resulting benefit is intangible and between the actors. Because collaboration is based on trust and commitment, one of the components which is strongly communication, attention must be paid to it. Analyzing empirical material showed that the lack of communication or knowledge transfer causes network actors to make their own, partly false, assumptions about the work of other actors. Creating a triad in such a stand-alone network adds every loose supplier into a smaller network, into a triad, making it easier to pass information. In addition, the benefit comes from sharing responsibility from the focal company to the members of the supply network. Although the buyer, or in this case the focal company in the supply network, would bear the main responsibility, the responsibility could also be shared among the members of triads. At the same time, it would increase the sense of cohesion of a supplier, a sense of longer-term and meaningful collaboration.

Information sharing and increasing communication have become daily, ongoing and easy by means of technology. Every company has nowadays their information channels for sharing information inside the company. It should be also ensured that information is also distributed to the supply network of company. In most cases, a few minutes used for phone calls or writing an email will pay off in efficiency or in the satisfaction of collaboration relationship. Many have probably experience with the feeling that information in the workplace is not being communicated as desired or to everyone. The same feeling can be extended to the whole supply network. The boundaries created by a triad, or the theoretical formation, form a whole in which the importance of communication is emphasized.

The answer to the research question is valid, at least to some extent. The subject of the thesis was extensive, which was the reason that the demarcation was made strictly tight. This led to some sources and perspectives being left unchecked. However, when comparing the research question, the theoretical and the empirical part, the necessary things are taken into account. In addition, the research question was answered. The basic point of view of the thesis was that the triad boosted collaboration, and this perspective has been retained throughout the thesis.

In addition to be an interesting subject, the thesis raised the thoughts of the author more broadly. The importance of doing business and relationships in a profitable business was mainly left to be considered. If working triads can be formed in the supply network, with a goal of a long-term successful partnership, how easy it would be to unlock an easy-going triad. The author is still wondering, that will money, profitability or operating profit go usually above personal relationships. It could also be interesting to study and know the value of personal relationships and the value of collaborative relationships in triads, supply networks and business relationships. These thoughts would be fruitful topics for further research. The most interesting thing to figure out could be that what is the matter which holds a triad more tightly together, is it productivity or personal relationships or something else. Answers for these thoughts would require repeating the interview with more target groups and with different supply networks.

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## APPENDIX A: INTERVIEW QUESTIONS

The questions that have been used in interviewees in thesis of Mika Perho, Forming and developing triads in supply network, in 2015. The interviewees have been marked F as function of the focal company, SS as supplier's supplier, and suppliers S1, S2, S3, S4 and S5.

### Backgrounds (Perho, 2015)

1. size of firm, domain, turnover and profitability
2. interviewee's role/task/position
3. collaboration organizations: primary customer/supplier/subcontractor, other
4. collaboration
  - a. How did it start?
  - b. duration (years, months)
  - c. based on project, annual or partnership contract?
  - d. time (pcs)

### Trust (Perho, 2015)

1. Do suppliers trust each other and how does it appear?
2. Do suppliers trust to buyer and how does it appear?
3. Has there been any reliability problems with the organization or personnel, what?
4. Describe reputation of collaboration organization?
5. Describe reputation of counterparty person in other organization?
6. What kind of experience and impression have been got from collaboration so far?
7. What is the basis of trust?
  - a. affective
  - b. cognitive
    1. prediction of behavior (calculated)
    2. perceive consistent behavior (knowledge) or
    3. mutual understanding and common values (similarity)
8. Level of trust (1-5): poor (1), adequate (2), good (3), very good (4), excellent (5)
  - a. F – S
  - b. S – F
  - c. S – SS
  - d. SS – S
9. Is there reciprocity in the relationship, what kind?
10. Is there solidarity in the relationship, how does it occur?
11. How do the organizational culture and norms differ in organizations?
12. Does principal control work too little, enough or too much?

### Commitment (Perho, 2015)

1. Is supplier committed to the collaboration and common target of another supplier, how does it occur?
2. Are both parties aiming to the long-term collaborative relationship?
3. Are suppliers committed to work together to achieve common objectives?
4. Have objectives accepted together?
5. Have relation specific investments been made? (e.g. equipment, training, certificates)
6. Level of commitment (1-5): poor (1) – excellent (5)
  - a. F – S
  - b. S – F
  - c. S – SS



## d. SS - S

7. Does supplier keep agreed schedules?
8. Estimate supplier's attitude (1-5) in task execution?
9. Estimate supplier's motivation (1-5) in task execution?
10. How has collaboration affected desire to collaborate in future (increased - decreased)?

## Collaboration (Perho, 2015)

1. Describe communication with counterparty
  - a. open?
  - b. confidential?
  - c. informal or formal?
  - d. frequency, regularity?
2. Describe communication between suppliers
3. Is there enough information exchanged?
4. Have the objectives set together?
5. Which of the following describes the relationship best: new, expanding, troublesome, static or lifeless?
6. How has collaborative relationship evolved over time?
7. How frequent are conflict situations (0-5) and how are them resolved?
8. Is there opportunism in relationships?
9. Does supplier have will and capability to more autonomous and self-directedness way of doing business?
10. How would you describe the short- and long-term flexibility of resources for changes in requirements and demand?
11. Do the counterparties have common social relations outside of business, what kind of e.g. hobbies etc.?
12. How well the collaboration is going poorly (1) – excellently (5)?
13. How important is the collaboration in future (1-5)?

## Relational behavior (Perho, 2015)

1. Do personal and social characteristics have conducive, none, or restrictive impact on doing business?
2. Is building and maintaining of personal relationships important (1-5)?
3. Does supplier act proactively in finding need and requirements of the customer and contribute to the competitiveness of the customer, how does it occur?
4. Do suppliers communicate horizontally with each other (0-5)?
5. Do suppliers communicate vertically with each other (0-5)?
6. To what extent actor provides sensitive/confidential information about itself and is the information withheld from others?
7. Quality of relational behavior (0-5): Sx-F F-Sx Sx-SS/SS-Sx
  - a) initiativeness
  - b) advance notice of intended and impending changes
  - c) disclosure of sensitive information
  - d) attraction  
(economic benefits, access to important resources and social compatibility)
  - e) personal chemistry match
  - f) total satisfaction
  - g) interaction frequency (times/week) and
  - h) richness (face-to-face, others)

8. How does another (what?) actor-actor relationship effect on collaboration in own dyadic relationship?

Power and responsibility (Perho, 2015)

1. Does supplier take responsibility of its own and co-partner's work and how does it occur?
2. Does supplier have competence and will to take care of increasing project management responsibility?
3. Are the tasks assignment, order and responsible clear to all actors?
4. Who coordinates the whole and how?
5. Has there been abuse of power?
6. How much actor has had to adapt in collaboration (0-5)?
7. Has actor been forced to submit to demand (0-5)?
8. Can supplier be empowered to do work self-directly? How does it happen?
9. How the suppliers' collaboration is achieved?
10. What changes triadic business model causes in the current tasks and job descriptions (in the focal company) compared to the current dyadic business model?