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Closing the ( )Space:

A case study of University-Business Cooperation

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CLOSING THE( )SPACE: “A case study of university-business cooperation”

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Abstract

Purpose – The purpose of this study was threefold. First, assist with the development and definition of The( )Space concept, an innovation platform intended to bridge the gap between actors in society. Second, increase the study's participants' understanding of university-business cooperation for future cooperative ventures. And third, contribute to research on university-business cooperation, especially by adding students' perspective on cooperation.

Design/methodology/approach – This is a case study presenting a qualitative analysis of university-business cooperation between students from the MATIX graduate programme at Gothenburg University and companies in the society. Semi-structured interviews with the representatives from all the actors involved, i.e. MATIX students, MATIX coordinators and participating companies, were used as the main method of data collection.

Findings – The findings were analyzed for all actors in the cooperation from four perspectives: motivations to engage, benefits, obstacles and suggested changes. The results revealed that the companies' key motivation and benefit were to get students' perspectives and ideas on firm-specific problems. The MATIX programme's key motivation and benefit were the ability to offer its students a chance to gain practical experience by working with dynamic firms. The students' main benefits were to gain practical experience of working with dynamic firms in the society. All actors involved perceived established relations to be one of the major benefits as well. The main obstacle of the cooperation was lacking communication between all the parties and the suggested key change was to initiate and have a continuous communication throughout the whole cooperation.

Originality/value – This study plays a role in adding findings to a field of study that especially lacks the students' point of view. Furthermore, since the study was triadic in its nature and investigated all the participants' perspectives on the cooperation it was possible to compare the participants' understanding of each other's motivations and drivers.

Keywords – University-business cooperation, UBC, students, case study.

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1. Introduction

In our modern history there has been a strong link between industry and government, and while there has been a shift from an industry society to a knowledge society, a third institutional sphere has become more prominent; the university. The inclusion of the university into this relationship is changing the dynamics and leads to new possibilities for societal progress, and is vital for improving the conditions for innovation. The university-industry-government triad has become known as the Triple Helix, a concept encompassing the belief that the university is of increasing importance as an actor in our knowledge society (Etzkowitz, 2003). In recent years researchers have been trying to identify more institutional spheres that can contribute to societal progress. Carayannis & Campbell (2009) and Lindberg et al. (2014) were among the first to introduce the Quadruple Helix in which they include the civil society or the public as the fourth institutional sphere. Later Carayannis and Campbell (2010) added the natural environment as the fifth sphere in the society, called the Quintuple Helix.

Not only the interactions between the institutional spheres are important, but also to look at where they do not interact. By looking at the space between the actors, we can find unexploited possibilities for the development of their relationship. In terms of relationship building and collaboration, university-business cooperation (UBC) has many potential improvement areas that would be beneficial for both parties and the society as a whole (Healy et al., 2014). Researchers have the last decades shown a growing interest in this particular area, something that appears to hold true for universities and companies as well. On the one hand, there is an interest for the two actors to work together but on the other hand the differences in organizational culture between them have caused difficulties (Plewa et al., 2005; Lambert, 2003). The biggest challenge in the promoting of UBCs seems to be boosting the demand on the company side rather than the supply from the university (Lambert, 2003).

There are many different kinds of UBC, but the prevalent constellation of cooperation is on the researcher level where companies work together with academic researchers on commercial projects (e.g. Lambert, 2003; Healy et al., 2014). Even though the inclusion of students in company research projects occurs, it is most often a way for the company to find suitable employees and research on the subject is rather limited. The limited literature on benefits from UBC that is integrated with education can at least partly be explained by the difficulties to assess who the beneficiaries of it are (Healy et al., 2014).

1.1 Background and Scope

In an attempt to identify and close the gaps between the actors in our modern society The( )Space was started as an ambitious venture with the aim to connect the dots and contribute to society. We very soon became interested in the concept and joined the group of first pioneers developing The( )Space. Our piece of the puzzle has been to study the first UBC that has been put together in the name of The( )Space, a cooperative

venture with six companies from diverse industries and students from a business graduate programme, called MATIX, in Gothenburg, Sweden. MATIX is a one year business graduate programme at the Gothenburg School of Business, Economics and Law. The programme is focused on providing the students with academic support and the practical experience of working with SMEs throughout the academic year.

- The SMEs cooperating with the MATIX programme will from now on in this paper be called *partner companies*.
- The six companies involved in The( )Space cooperation will from now on in this paper be called *The( )Space companies*.

The cooperation between the MATIX students and The( )Space companies was, in a sense, an experiment in bridging the gap between actors in the society. From a research point of view, it was an opportunity to do a case study on this specific cooperation, where motivations for entering, as well as benefits and obstacles would be investigated. This was to be performed by doing a qualitative research by interviewing multiple actors involved in the cooperation.

The cooperation between the MATIX students and the partner companies is based on a cooperation model that has been developing and improving for a long time. By also studying this cooperation it was possible to compare the two separate types of cooperation, which both were in different stages of maturity. For instance, the cooperation with the partner companies stretches over one academic year on a yearly basis with new students participating every year, while the The( )Space cooperation stretched over a three-month period for the first time this year.

Most of the previous studies and literature on UBC seem to be lacking the student perspective. Therefore, we wanted to do a triadic study including the student perspective, along with the university and business perspectives. Whilst those themes are independently supported by literature, they are most often studied in isolation or with dyadic research only focusing on the business and university relation. Hence, we identified this as an opportunity to contribute with a new angle to this particular field of study.

1.2 Purpose and research questions

Our purpose for this case study finally came out to be three folded. First, the main goal was to assist with defining and developing The( )Space concept. Second, the study aimed at increasing the participants' understanding of UBC for future cooperative ventures. Third, the research aims to contribute with valuable information to the theory of university-business cooperation, especially with the addition of the students' perspective on cooperation. Additionally, our hope is to shed a light on why universities and the business society should cooperate to a larger extent, closing the gap between those two important societal actors.

To realize our purpose we decided to analyze The( )Space cooperation by answering the following research questions:

RQ1: *What were the perceived motivations for the actors involved to engage in The( )Space cooperation?*

RQ2: *What were the perceived benefits deriving from The( )Space cooperation for the actors involved?*

RQ3: *What were the perceived obstacles of The( )Space cooperation for the actors involved?*

RQ4: *How do the actors involved in The( )Space cooperation perceive that the process of collaboration could be more effective?*

The findings will be complemented and analyzed in relation to theory from previous studies and research, which mainly will benefit the actors of this specific cooperation and provide guidance for their future cooperative efforts. Furthermore, the analysis will make it possible to create interesting discussions and suggestions on how the university and businesses in the society could be more effective in cooperation.

First, looking at the actors' perceived motivations for engaging in cooperation allows for a better understanding of what they were hoping to benefit from the cooperation. Second, the perceived benefits of the cooperation then allows for a better understanding of the actual benefits from the cooperation. Third, the perceived obstacles in the cooperation gives a good understanding of what proved difficult for the actors involved and where it affected the process the most. The last question will address the most important drivers for university-business cooperation in general and provide managerial implications to how the specific cooperation can be developed in an effective manner.

2. Literature review of university-business cooperation

The academic research interest in university-business cooperation (UBC) has exponentially increased the last decades, something which becomes quite evident when looking at the number of published articles using the Google Scholar search engine (see Appendix A). Also, the importance of cooperation between universities and the business sector has been highlighted by the European Commission, which has issued a number of extensive reports on this matter (Davey et al., 2011; Davey et al., 2013; Healy et al., 2014; Rakovska et al., 2014; etc.). In general there can be regional differences of how different types of UBC function and since our study is in the Swedish context the literature review is focused on studies in the European Union, with only a few generalizable examples set in other contexts (e.g. Scricca, 2006).

In our literature review we aimed to highlight the literature that could give the reader a background to UBC and provide a background to earlier research that is important to our research questions. The first section on different types of UBC intended to provide a background on the subject for the reader and to **RQ4**. The second section on motivations and benefits of cooperation was directly aimed at **RQ1** & **RQ2**. The third section on obstacles and barriers of cooperation was aimed at **RQ3** and the fourth section on cooperation drivers and key changes at **RQ4**. Although, the sections are not to be viewed in isolation of each other since the subjects often are related.

2.1 Types of university-business cooperation

In their extensive research on university-business cooperation in the European Union Davey et al. (2011) compiled a list of what they found to be the eight types of UBC (see figure 2.1). The two most common types in the EU are Collaboration in R&D and Mobility of Students, although the mobility of students is one of the least common in Sweden (Davey et al., 2013). Furthermore, Davey et al. (2011) name the actors who create support for UBC to be (1) Higher Education Institutions (HEIs), (2) Business, (3) Intermediairies and (4) Governments.

An example of an initiative to support university-business activities through intermediaries is the Faraday Partnerships in the UK. The goal is to act as an important intermediary between university and business. The core activities include an exchange of information between businesses and universities, collaborative R&D projects and dissemination events. Businesses, universities, research and technology organizations, professional institutes and trade associations take part of the partnerships (Lambert, 2003).

In his review, Lambert also describes government schemes that aim to support UBC, and contribute to knowledge transfer and innovation in the society. The LINK Collaborative Research Scheme has the goal to link university and business research, and through that collaborative research stimulate innovation and wealth creation. It is jointly funded by the government and industry. Knowledge Transfer Partnerships (KTPs) have the goal to promote knowledge transfer between universities and businesses. A high quality

graduate works in a business on a strategically important project for the company ranging from 12 to 36 months. The graduate is supervised by the university partner and a representative from the company, and the project is partly funded by the government and the rest is funded by the business.

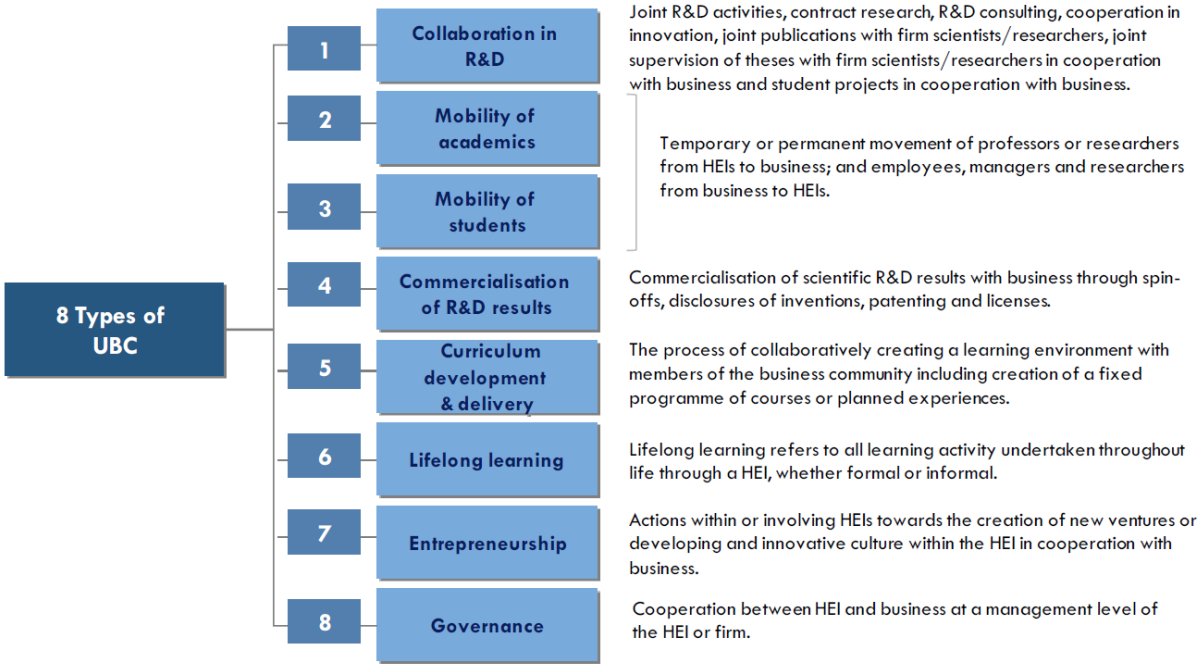

Figure 1: Eight types of UBC (source: Davey et al., 2011)

There are of course a vast number of different ways for business and HEIs to cooperate. In order to further explain the two most common types of UBC we give some examples of UBC types mentioned in Lambert's (2003) review. As part of the Mobility of Students, industry can sponsor students with the goal to provide the students with commercial experience and the company an access to a steady stream of talented students. A way to do this sort of partnership is for a company to give the students of a partner programme a chance to work part- or full-time at the company during the studies. The students can be paid salaries and gain insight into business activities, while the company can figure out which students are suitable candidates to recruit.

As part of the Collaboration in R&D, the most common UB activities are contract research, collaborative research and consultancy (Lambert, 2003). When doing contract research the goal is for the business to outsource the research to a university researcher, without being especially involved. The company pays the university at least the full cost of the work and in return the company receives the results of the research. With collaborative research the goal is to develop research for both university and business, and the university and industry researchers work together on the projects. The funding comes from both the business and university side. The goal with consultancy is in general for businesses to make use of the academics' expertise. The major difference from contract research would be that in consultancy the focus of the academics' expertise is directed at providing an advice, instead of conducting actual research.

Collaboration in R&D can also take the form of projects involving students, either through thesis work or joint projects as part of programmes or singular courses. For instance, Afacan (2013) did a study of a 15-week collaborative design course between university and industry where she investigated the outcome for students in terms of learning and working with industry. The first eight weeks were more theoretically based, while the last seven weeks were focused on practical experience. In total, 45 percent of the grade was allocated to the theoretical part, therein clearly divided to different tasks, and the remaining 55 percent to the practical part, where the students individually worked with an industry partner. During the first part of the course the students were put into a theoretical context that would help them in the collaboration with the industry partner. The first two weeks of the practical part were used by the company representatives to educate and inform the students, who in turn could ask questions and come with suggestions. The third week was used to introduce the students to the company software and the last four weeks were spent on the projects. The six best solutions were finally awarded and exhibited by the industry partner.

Since a university can have many business relationships and they can be under complex forms, it is not unusual that there are university offices specifically assigned to working with business liaisons. The concept of third stream activity was brought in to universities in addition to the classic two main university activities: research and teaching. Third stream activity adds the activity of engaging with industry to the university's main assignments (Lambert, 2003). In Sweden, academics appear to find UBC to be vital for the university to achieve its mission, something which was not as important in the rest of Europe (Davey et al., 2013). Third stream activities can, among other things, enable universities to build up their capacity to engage in business networking, market their research and provide work placements for students in industry (Lambert, 2003). In his report for HEPI (Higher Education Policy Institute), Hatakenaka (2005) argues that the third stream activities should be integrated with the teaching and research, mainly because their strong linkages have become clear.

2.2 Motivations and benefits of cooperation

Innovation strategies have changed over the recent decades and in many industries it has become too complex, expensive and slow for one company to only depend on its own research (Lambert, 2003). In his review, Lambert argues that the increasing complexity of products forces companies to combine numerous scientific disciplines, something that is a stupendous task for any company to handle alone. On the same note, companies focus increasingly on their core strengths and outsource in areas where a potential partner could be stronger. Lambert deems universities to be very attractive partners for industry because of the constant arrival of fresh and clever new minds. In their research about relationship marketing and university-industry linkages, Plewa et al. (2005) found a consensus with the participating companies that they could benefit from tapping into university facilities and talent.

In his research, Lambert (2003, pp. 23-24) discovered six ways for businesses to gain competitive advantage by collaborating with universities:

1. *Access to new ideas of all kinds.* Academic researchers can contribute with both expertise and international networks. They are most likely in touch with what is happening in their field on a global level.
2. *The ability to achieve excellence across wider range of disciplines and through a much larger IP pool than an individual business could hope to create on its own.* By using external research aid, companies can tap into a much greater research base.
3. *The ability to leverage the research dollar.* Companies can gain access to public funding by collaborating with publicly funded institutions, such as universities. This can open up opportunities that the company otherwise would not be able to afford.
4. *A chance to spot and recruit the brightest young talent.* By being closely involved in industrial liaison programmes, the companies can gain deeper knowledge of the students involved in the projects.
5. *The ability to expand pre-competitive research.* Companies can spread the risk and attain a wider range of research by collaborating with other businesses and with universities.
6. *Access to specialized consultancy.* Tapping into the knowledge of universities in the form of consultancy work can help the companies to attain more specialized and applied knowledge.

In her dissertation, Scricca (2006) describes that it is not only companies that can benefit from the cooperation. Her findings suggest that industries and universities seek to engage in UBC because they both require the counterpart's resources. Scricca claims that both actors want to expand their organizational capabilities and that they, through these collaborations, can build competitive advantages and ensure growth and survival. Lambert (2003) exhibits in his review, that there is a correlation between university-business collaboration and a significantly higher business performance. For instance, companies that use higher education institutions as a source of information or as a cooperating partner are more likely to; (1) increase their market share, (2) improve the quality of goods and services, (3) increase the range of goods and services, and (4) reducing costs. Nonetheless, Lambert makes it very clear that this does not mean that collaboration with an HEI leads to certain success, it is a combination of factors and the explanations for the results can be various.

In their findings, Plewa et al. (2005) discuss that the differences in perceived value between relationship partners appears to be greater in university-industry relations than other common relationships. The motivation for cooperation appears to differ between the two types of organizations, whereas industry in general is motivated by commercial interests, and the university is motivated by knowledge creation. Through interviews with industry Plewa et al. found that one motivation for a company to enter a collaborative venture is the research outcome itself, something that they argue might be

linked to the small size and science-intensive of a company. In total, Plewa et al. (2005) listed four major values that motivated the university to engage in university-business cooperation, and five for the industry. The university found that: (a) retention of the collaboration, (b) strategic aspects, (c) knowledge advancement, and (d) additional funding were motivating values. The industry focus was on: (a) retention of the collaboration, (b) knowledge advancement, (c) technology gain, (d) human capital gain, and lastly (e) contacts and access to networks.

Knowledge- and technology transfer often does not benefit the university itself economically, but instead generate benefits for the public good, both economically and socially (Lambert, 2003). Darabi and Clark (2012) also claim that universities contribute to economic development, as well as to innovation. Hatakenaka (2005) argues that the goal of third stream funding should be to focus on changing the university values regarding third stream activity, because the economic and social impacts for the university can take a long time to materialize. Nonetheless, Plewa et al. (2005) noted that knowledge transfer through employment and transferability of graduates and staff was viewed as a central motivation for collaboration, both from the university and the industry side.

In addition, Bekkers and Bodas Freitas (2008) found in their research, in the Dutch national context, that industry and university have a similar view on which university-business channels of knowledge transfer are important. Among the most important channels of knowledge transfer were scientific and professional publications, personal informal contacts and university graduates as employees. All of them higher ranked than knowledge transfer through joint R&D projects (Bekkers & Bodas Freitas, 2008), which is the most common type of UBC in the EU (Davey et al., 2011).

From the students' point of view, Afacan (2013) found that the students increased their awareness of the subject at hand, increased their ability to apply their knowledge on real life cases and also improved their academic outcomes by working in an active learning environment. The active learning environment came from creating and sharing ideas with the industry, which was seen as a beneficial experience. Furthermore, all the students engaged in the project found that doing presentations was an effective way of learning to do multi-dimensional analysis, to make use of experience and a chance to be creative. Furthermore, Davey et al. (2011; 2013) found that the three most prominent benefits for the university, both in EU and Sweden, fell upon the students: (1) increased employability, (2) increased skills and (3) increased learning experience.

In summary, there is much written about motivations and benefits from university-business cooperation. The focus seems to be on accessing resources and new mindset (Lambert, 2003; Plewa et al., 2005; Scricca, 2006) in order to achieve better performance (Lambert, 2003; Scricca, 2006) and establish relations with a broader network of people (Plewa et al. 2005). A few researchers even point out that university-business cooperation can benefit the society in economic, social and even in innovative ways (Lambert, 2003; Darabi & Clark, 2012).

2.3 Obstacles and barriers of cooperation

A part of the problem with lacking demand from the business side may derive from individual companies, especially SMEs, having trouble knowing which university departments that are doing work relevant to their specific need. In general, Lambert (2003) argues for that the difficulty in engaging businesses to work with university departments and students lies in the lack of awareness about the expertise that can be found at universities, something that is also in line with the findings of Darabi and Clark (2012). Even though companies are broadly satisfied with the quality of the graduates that they recruit, there is a mismatch between the courses offered by universities and the needs of industry (Lambert, 2003). According to Lambert this can be an obstacle for the companies since the students lack the skillset needed for the cooperation. Regardless of this, companies find it difficult to come in contact with universities to discuss the companies' present and future skill requirements, because they often feel that there is no clear way of entering such a dialogue. Lambert (2003, p.10) states:

> *"The biggest single **challenge** when it comes to encouraging the growth of successful business-university collaboration lies in boosting the demand from business, rather than in increasing the supply of products and services from universities."*

Companies can find it hard to manage the university-business relationships and universities have problems with frequent changes in company strategies (Lambert, 2003). Darabi & Clark (2012) state that the bureaucratic system, often imposed by the university, can be an obstacle for collaboration between the two actors, and in some instances it can have hampering effects on innovation. In general, according to Plewa et al. (2005), there appears to be an issue for the industry to engage with universities because of academics' lack of market orientation. The cultures and missions of universities and businesses are different and difficult to match, which can make a collaborative effort more difficult to function (Lambert, 2003).

As a part of the organizational culture differences between industry and university, the two are working with time in different ways (Plewa et al., 2005; Davey et al., 2011). In contrast to industry, who often is working with short time-frames and deadlines, academics usually work with longer time-spans and with very few exact deadlines. Bruneel et al. (2010) found in their study of barriers for companies collaborating with university in the UK that both SMEs and large firms encountered similar obstacles and that the lower sense of urgency at the university was a major obstacle, but also the mismatch in expectations and working practices were found to be an issue. Furthermore, Duncan (1974) points out the differences in values between academics and business managers, whereas researchers view theory as the goal in itself, while the managers see theory as a means to a practical end. Also, researchers have a lack of practical managerial experience, which is perceived as a barrier by both researchers and business managers. Plewa et al. (2005) state that an obstacle to cooperation can be how different the flexibility and organizational structure of university and industry are. They

claim that this can inhibit or terminate university-business cooperative ventures, and even more so than for non-compatible structures in private-sector alliances. It appears that the opinions of the researchers and business managers differ since the researchers find the business procedures too rigid, while the business managers find that the researchers wrongly assume that changes and systematic propositions can be implemented rapidly (Duncan, 1974). Darabi and Clark (2012) found that especially the differences in type of language used in business and university brought forward failure in communication. On the same note, Duncan (1974) found the differences in language use to derive from researchers using too specific and impractical technical terminology while business managers use a too robust and imprecise language.

Just as proximity can be a necessity in many business collaborations, collaborating over long distances can be a major obstacle. Although we have entered the era of more connectivity through the internet, the importance of proximity and personal contact is growing (Lambert, 2003). The impact of proximity is also indicated by the study by Plewa and Quester (2008), where 70 percent of the examined Australian university-industry relationships turned out to be within relatively close proximity.

According to Darabi & Clark (2012) lack of time and the need of multi-tasking were found to be a barrier for UBC, both for industry and university. For instance, they stated that the university staff often is overloaded with teaching, research and administrative duties and have little or no time to spend on external relations. Furthermore, Duncan (1974) argues that the business managers are under time pressure from day-to-day activities which can reduce the time available for focusing on the cooperation. In a collaboration with the industry, Afacan (2013) found that a fifth of the students, involved in her research, encountered problems because the experience was overwhelming or tiring, from too much work in too little time.

In a study of student group work, O'Brien and Hart (1999) looked at how students experience working together in a team with assignments where not all information needed to solve the problem was given, an exercise called Information Retrieval Exercise (IRE), which in some sense is meant to simulate an experience of working in a team at a company and highlighting the students strengths and weaknesses for such an environment. The main obstacle was usually related to teamwork and most of the groups would have made changes regarding group dynamics if they would do the exercise again, such as dividing tasks, involving everyone and deciding on a leader. The other obstacles related more to structural issues and the groups would have focused on prioritization and time management, such as setting objectives earlier and spending more time on analyzing information.

Darabi and Clark (2012) identified a lack of trust to be an obstacle that often took its form in a too low level of knowledge and information sharing. Similarly, Duncan (1974) found the lack of trust to inhibit communication. Especially there appears to be a lack of trust from researchers in business managers who do not value systematic theory, and from business managers, who lack the belief in researchers solving their problems. In

their research, Plewa et al. (2005) found that communication failure instills conflict, and the management of communication appeared difficult because of the differences in organizational environments of university and industry. A respondent in the study summarized this notion, *"...trust comes from communication, conflict comes from communication failure"* (Plewa et al., 2005, pp. 441-442).

In their study of student group work, O'Brien and Hart (1999) found that students showed some incapability of solving problems tactically and looked at the problems more strategically, even though the students themselves were quite unaware of it. O'Brien and Hart argue that this shows that academia, in this aspect, has failed to prepare the students for the workplace where also tactical thinking is of high importance. Furthermore, in the study by Priddle et al. (2015) it was demonstrated that less obvious academic skills that students acquired in the UK, but that nonetheless are seen as important for employability and sustainability, were acquired outside of the curriculum. They argue that students within HEIs often have trouble understanding where skills that can support their employability are present in their curriculum. Universities might have trouble to include and communicate those skills through the curriculum, which could lead to unsatisfied students or conflict.

Lambert (2003) claims that before entering a collaborative research partnership it is important that the actors involved negotiate and make clear what the terms and conditions of IP ownership and exploitation are, since it can become very costly to do so in retrospect. Coming to an agreement on IP ownership can be difficult for some and that can cause a barrier that especially SMEs find discouraging. On a similar note, Bruneel et al. (2010) found in their research that both SMEs and larger firms found potential conflicts regarding royalty payments to be a barrier of cooperation. Darabi & Clark (2012) added that SMEs in particular feared that sensitive information could be shared with the competition and therefore they avoided cooperation. Lambert (2003) argues for a more free use of IP, which could increase the total economic impact of the IP in the future since it will open up possibilities for further research and exploitation. Nonetheless, the companies need the proper rights so that they are able to take the technology to the market. Relating to the difficulty of agreements on IP ownership, Plewa et al. (2005) discusses the complexity of confidentiality concerns and matching the individualistic and science-loving characteristics of an academic with the competitive nature of industry, making the communication management seem more problematic between these two types of organizations. Afacan (2013) presents in her paper that a quarter of the students working together on presentations had troubles because they lost the personal ownership of their ideas, there were opposing ideas within the group and it was difficult to get organized. There were also some technical difficulties, but the fact that the students lost ownership was especially important since it was in the field of design.

To summarize, Lambert (2003) and Darabi & Clark (2012) point out that there seems to be a problem for university and business to get connected because of a lack of knowledge about each other. Most obstacles seem to be caused by the organizational

differences between the two (Duncan, 1974; Lambert, 2003; Plewa et al., 2005; Bruneel et al., 2010; Darabi & Clark, 2012). Communication failures and lack of trust are also obstacles that are often mentioned (Duncan, 1974; Plewa et al., 2005; Darabi & Clark, 2012).

2.4 Cooperation drivers and key changes

In their research on members of the EU, Davey et al. (2011) found that relational drivers are the strongest drivers in UBC, in contrast to what they refer to as business drivers. The five strongest relational drivers are according to their study (1) mutual trust, (2) mutual commitment, (3) common goals, (4) mutual understanding and (5) personal experience. Furthermore, they stated that the business drivers mainly are based on (1) potential employment, (2) access to scientific knowledge, (3) geographical proximity and (4) flexibility of business partner. In fact, in their study on Sweden specifically the same drivers were found to be the most important (Davey et al., 2013). Furthermore, Rakovska et al. (2014) found in another study commissioned by the EC that common goals and benefits, commitment and communication are three of the most important drivers in UBC. All these drivers are often mentioned in literature and while these studies scraped the surface other studies have gone more into depth to see how these relate to each other.

Darabi & Clark (2012) claim that in order to facilitate initiation of cooperative ventures with industries it is critical for the university to communicate what is available and what is the actual value of working with the university. Moreover, business leaders with experience of higher education seem to facilitate cooperation, potentially because that they better understand both what the university can offer and have wider engagement with university since they have been a part of it and therefore trust it more. This is closely related to the measurement of personal experience, used by Plewa and Quester (2007; 2008), where personal experience relate to the level of involvement, understanding and the network that the individuals of the relationship have in the other environment. A surprising finding was that personal experience had a weak influence on the relationship, but the authors speculate that personal experience could positively relate to a higher expectation of relationship continuity and investment, and that it might play a greater part in relationship initiation than in its actual maintenance (Plewa & Quester, 2007). Also, Darabi and Clark (2012) found that previous experiences and personal relationships facilitate initiating collaboration. On the same note, Bruneel et al. (2010) propose that universities and industry could mitigate orientation-related obstacles in their cooperation with their experience of collaboration.

In contrast, Plewa and Quester (2008) did not find a significant influence from experience to trust or commitment in the relationship, but instead it had a strong impact on the engagement. As could be seen from the study of Plewa and Quester, the more that individuals on both sides are engaged in the relationship development, the more the groups will also be committed. Furthermore, Plewa et al. (2005) found that communication is one of the most important characteristics of the collaboration, and

that the trust and commitment helps linking the partners together. The trust in collaborations often stems from the partners' expertise but the ability for the university to work with the industry has had a greater impact on trust building in university-business ventures. While trust was found to be the strongest relational driver to positively influence satisfaction, it surprisingly did not significantly affect the intention to renew the collaboration (Plewa & Quester, 2007). Although, it appears that trust does have a significant impact on the level of commitment in the relationship (Plewa & Quester, 2008). Instead, commitment to the relationship showed to be an especially strong driver to the intention to renew the collaboration. To have an organizational compatibility was demonstrated to have a significant positive influence on trust, and can in part be explained by a higher level of understanding and empathy (Plewa & Quester, 2007).

In addition to mutual trust, Plewa et al. (2005) discuss mutual understanding as a building stone to a strong and satisfactory relationship. To achieve mutual understanding there needs to be a constant exchange of information and two-way communication. Also, Bruneel et al. (2010) state the need of building trust between the academic and industrial practitioners, based on mutual understanding, which also requires a personal contact between the actors. Moreover, Darabi and Clark (2012) found in their research that the mutual understanding and awareness are highly important for the initiation of a UBC. Furthermore, mutual understanding and customization of the relationship can increase the confidence of SMEs so that they are more willing to share information.

Also, Plewa et al. (2005) deduced that togetherness and to be working as a team for a common goal is a strong driver for UBCs. The collaboration is the most exciting when like-minded people get together and work on a problem but since innovation processes are non-linear, they demand a dynamic collaboration between the academic and business researchers (Lambert, 2003). Such a collaboration, where industry and university are highly integrated together, helps foster and diffuse knowledge between the parties and can lead to better results (Plewa et al., 2005). Integration was also found to be a significant driver to satisfaction in the collaboration, and appears to be linked to the importance of knowledge transfer in UBC (Plewa & Quester, 2007).

Davies (2002) has in his extensive review narrowed down the drivers of pupils' development of skills and knowledge that is useful for their future working lives into three strands of activity. The first strand focuses on "education about work", which has the aim to teach the pupils how business functions operate. The second strand, "education for work", has its focus on improving the transition for the pupils to the working lives. The third strand, "education through work", most often focuses on giving the pupils opportunities to gain work-related experience.

Afacan's (2013) study of a design course in Turkey is a good example of such a course bridging these three strands of activity. In the student collaboration with industry in Turkey, she found that awarding and exhibiting the best solutions were perceived as a

great driver for the students. Also, the active learning environment of working with industry was a great driver for knowledge development. Plewa et al. (2005) found that one driver for the university in university-business collaboration is to retain the relationship with the company for future cooperation, but in contrast, another driver they found for the university was that the company benefitted and made use of the results from the cooperation. Also the industry found future cooperation as an important motivator, but that mutual trust is of importance especially when there are no direct economic benefits from the relationship. From their interviews with representatives from Australian universities Plewa et al. (2005) learned that financial aspects and strategic positioning are also viewed as value-creating factors.

In his review, Lambert (2003) recommends academics and business people to spend more time together, which is in line with Duncan's (1974) counsels but he stresses that there needs to be a superordinate goal with the meetings. Moreover, Duncan suggests that academics and business managers have periodic discussions in order to facilitate the development of mutual understanding. On the same note, Lambert (2003) suggests encouraging a flow of business people to universities and the other way around, with the aim to further increase the demand and understanding of the business needs and matching possibilities with the academic world. Since much collaboration between universities and businesses has evolved from chance meetings between academics and business people Lambert suggests that increasing the number of possible meeting occasions is likely to spur more collaboration that happen by chance. Similarly, Darabi and Clark (2012) propose events and workshops at business schools to build personal contacts in order to create the initial trust that is needed to found a relationship. Extensive alumni networks, with their mutual understanding of both worlds, could also serve as a good starting point of contact between university and industry (Lambert, 2003) and in general Darabi and Clark (2012) state that networking is a driving force for initiating collaboration.

Another way of integrating and diffusing knowledge could be, as suggested by Duncan (1974), to introduce exchange programs where the academics could get practical managerial experience. Introducing intermediary actors, such as development agencies focusing on university-business relations, could facilitate university-business collaboration by connecting the right nodes together (Lambert, 2003). Also, Darabi and Clark (2012) suggest that business schools consider to group together individuals who work specifically on external relations, which could mitigate the barrier of the university not having enough time. On the same note, Rakovska et al. (2014) found that an easier and more flexible communication is needed and that there should be specially assigned individuals to work with UBC. Lambert (2003) also states the importance of proximity in business collaboration, especially for SMEs, and long distances can make it difficult to sustain informal networks.

Priddle et al. (2015) state that it is clear that the integration of employability skills needs to be included into the curriculum at universities, and especially that it needs to be relevant and visible for the students. Although, employers have indicated that the skills

that they want, but do not get, with graduates and postgraduates are those skills that often need to be acquired on the job (Lambert, 2003). The design students of Afacan's (2013) study expressed that they would like a higher integration of collaboration into their curriculum courses to be better prepared for real life situations and through the use of technology cooperate with companies on a more global level. Nonetheless, Bekkers and Bodas Freitas (2008) suggest that recruiting skilled students or supporting master's and Ph.D. theses could help companies to specify what knowledge is of importance to them and to adopt it to their products and processes.

As the universities gets more involved with industry they need to establish new governance policies and mechanisms (Lambert, 2003). Not only the universities need to change their way of working, also the industry need to change, at least to some degree, in order to facilitate a knowledge sharing culture (Darabi & Clark, 2012). Lambert (2003) states that the knowledge transfer from the university to industry, the generation and dissemination of new ideas are meant to be supported by public funding, but not to be a way for the universities to become rich. Businesses in the UK perceived the universities as slow-moving, bureaucratic and risk-averse, and thought that they could be more dynamic in their approach to collaboration. Rakovska et al. (2014) recommended, based on their findings, that universities should modernize the education and narrow the gap between theory and practice. Moreover, they suggested that students should be helped to obtain skills useful for working life, update the curriculum and provide opportunities for students to gain practical experience.

In order to overcome the different cultural values and organizational structures, and also to create more bilateral value, Plewa et al. (2005) suggest that universities and industry especially focus on establishing a high level of interaction, trust and commitment between the two parties. To further overcome the organizational barriers, especially with SMEs, the expectations of the relationship need to be managed early on (Darabi & Clark, 2012). For organizations that aim for long-term relationships, Plewa and Quester (2007) suggest a focus on attaining a high level of commitment, as it is the strongest predictor of relationship continuity. Furthermore, there should be a major focus on identifying and including individuals that are experienced and involved with the opposite organizational environment into the relationship (Plewa & Quester, 2008). Scricca (2006) suggests that modifying the project procedures according to the fluid nature of the research process and to the changing needs of the relationship could influence the outcomes of the partnership positively.

In summary, researchers have written about various types of drivers for university-business cooperation and in general it comes down to people and the relationship between people that drive cooperative ventures. It seems that there are certain drivers that facilitate the initiation of cooperation, e.g. prior experience with cooperation (Plewa & Quester, 2007, 2008; Bruneel et al., 2010; Darabi & Clark, 2012). Then there are some drivers that facilitate the actual cooperation, e.g. shared goals (Duncan, 1974), mutual understanding (Duncan, 1974; Plewa et al., 2005; Bruneel et al., 2010; Darabi & Clark, 2012), trust, communication and commitment (Plewa et al, 2005). Also, Afacan (2013)

states that there are drivers for students, e.g. awards as an incentive to perform well in the cooperation and to perform in an active learning environment to develop knowledge.

Regarding changes suggested for improved cooperation ventures the researchers mention the importance of establishing connections and channels for connections to a greater extent (Duncan, 1974; Lambert, 2003; Darabi & Clark, 2012). They further state that there is a need for creating a mutual understanding of each other and more channels (Duncan, 1974; Lambert, 2003; Darabi & Clark, 2012). Lastly they claim that there is need for some organizational and cultural changes for a better fit (Lambert, 2003; Afacan, 2013; Priddle et al., 2015).

3. Method

3.1 Case studies

By doing a case study on the cooperation between the MATIX students and The( )Space companies it was possible to observe the actors involved in the cooperation and better understand the context of their behavior, e.g. asking what motivated them to engage as well as asking about benefits and obstacles. This allowed a good overview of all actors' perceived experience of the cooperation.

There are various methods a researcher can choose to use for research. Many of these methods overlap because their boundaries can be unclear. According to Yin (2009) there is no one right formula that a researcher can follow in order to see if a case study is the right method to do research. But it is especially the appropriate method to use when the researcher has little or no control over the aspects being studied, and/or the phenomenon being studied is active in a real life context during the time of the study.

Yin (2009, p. 18) defines case studies in two ways. The first definition is:

- "A case study is an empirical inquiry that
    - investigates a contemporary phenomenon in depth and within its real-life context, especially when
    - the boundaries between phenomenon and context are not clearly evident."

A case study therefore can help the researcher to understand real-life phenomenon, like university and business cooperation, in depth.

Because of the problem of defining the boundaries of phenomenon and context, Yin (2009, p. 18) adds clarifications in his second definition:

- "The case study inquiry
    - copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
    - relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
    - benefits from the prior development of theoretical propositions to guide data collection and analysis."

3.2 Case study design

This research is based on a multiple-case design with a single-unit of analysis, where the unit of analysis is the cooperation between each firm and group of students. For this study, qualitative research methods, such as, interviews were the main source for collecting empirical data. According to Yin (2009), this is one of four types of research designs that researchers can use for their case studies. Research design in case studies is the framework or the method used to link together collected data to the research question. It can be tricky to realize which frameworks or methods to use because of the

unclear boundaries between the phenomenon and the context (Yin, 2009). In addition to interviews, previous studies and literature were also used to draw conclusions.

3.3 Semi-structured interviews

As mentioned above the main source for collecting empirical data was through interviews, more precisely semi-structured interviews. Semi-structured interviews serve as a flexible interview process where the interviewee is asked questions regarding a specific topic. The interviewee has the freedom to answer the questions as interpreted. The interviewer usually has the topics that need to be covered along with guiding questions at hand, this is called the interview guide. The questions do not need to be asked exactly as written in the interview guide, and questions can be dropped or added if needed. If many people are being interviewed, the questions need to be asked in a coherent way in order to be able to interpret different perspectives on the same specific topic (Bryman & Bell, 2011). The reason for researchers often relying on semi-structured interviews as a tool is because they give a good opportunity to gather information about the conditions in the case with a focus on the interviewees' experience, motivations and reasoning (Drever, 1995). Therefore conducting semi-structured interviews was the most appropriate way to gather data in this case because the aim was to ask about and understand personal motivations and perceptions of factors that could help answering the research questions. The flexibility of the semi-structured interviews also made it possible to ask detailed questions to specific actors about the cooperation that could be beneficial for further development of The( )Space.

3.3.1 Designing the interview schedule

According to Drever (1995), the first step for the researcher is to develop and design the interview schedule. Bryman & Bell (2011) call this the interview guide, as mentioned above, while Yin (2009) calls it a case study protocol. The interview schedule contains the main questions as well as other information which is good for the interviewer to keep in mind. This helps the interviewer to keep the interview on the right track as well as it helps to keep the consistency through all the interviews (Drever, 1995). Drever suggests that the schedule consists of few pieces of paper on a clip-board, but we felt it would be easier to just use our computers since we were also using them to record the interviews. Before we got in contact with all the actors' representatives we designed the interviews for each actor involved in the cooperation. The research questions and the project's purpose were kept in mind during the interview questions design, as suggested by Drever (1995), because we felt that they would act as a guideline towards acquiring the right information. We used previous studies from similar cases to support the interview questions design. Using questions from previous studies can be helpful since those questions have, in a way, been tested.

There were two previous studies we mainly used to support the interview questions design. The first one is *The State of University-Business Cooperation in Sweden* (2013) by Todd Davey, Victoria Galan Muros, Magnus Klofsten and Arno Meerman for the

European Commission. Davey et al. look at stimulating drivers for cooperation as well as benefits and barriers in UBC. The second one is *Assessment of cooperation between higher education institutions and employers in Europe* (2014) performed by Nevena Rakovska, Samo Pavlin and Mateja Melink for EMCOSU (Emerging Modes of Cooperation between Private Sector Organisations and Universities) supported by the European Commission. Rakovska et al. did an extensive study on UBC in eastern Europe. Their focus was mainly on key challenges of UBC, key factors and drivers for fruitful and long lasting UBC, and key changes the two parties have to implement in order to enhance UBC.

These factors helped with the design of the interviews especially regarding how it would be best to state questions for different actors while at the same time getting comparable answers. As mentioned above about semi-structured interviews, they can be flexible but need to have consistency when there are many respondents being interviewed (Bryman & Bell, 2011). Therefore, we designed specific interview schedules for each of the different actors involved in the study, that is, one for the students, one for the company representatives etc. As an example, the interview schedule for The( )Space companies can be seen in Appendix B.

We decided that the interviews should all begin with a short preamble where our appreciation was expressed to the interviewees for taking their time to answer our questions. Then we did a short introduction of ourselves, the project and what the aim of the interviews was. Starting with a preamble, according to Drever (1995), should give a better understanding of what the researcher hopes to get from the interviewee as well as making the interviewee feel comfortable about speaking about the subject. We decided to open up the interview with an easy question about the interviewee in order to keep the atmosphere light and to avoid threatening the interviewee in any way. Using easy questions in the beginning about something that the interviewee does not have to think too much about can help the interviewer in a couple of ways, e.g. to identify the respondent's character, and to give incentive for lengthy answers (Drever, 1995). When we were designing the questions we thought extensively about in which sequence they should be asked in order to not confuse the interviewee. Good flow of questions in a sensible sequence should lead the interview and keep the interviewee on the right track but leave some room for interpretation (Drever, 1995). We thought it would be a good idea to conclude the interview with opening up for the interviewee to add information that had not been asked or spoken of before in the interview, or if the interviewee wanted to ask us questions. This gives the interviewee a chance to address things that are important to him/her and could add valuable information for the researcher to discuss (Drever, 1995).

We spent considerable amount of time designing the interview schedule as we felt it would be beneficial to spend more time, than less, on it. We involved our supervisors in the design because they would be able to provide both academic and practical input to the design. Drever (1995) recommends that researchers work extensively on this step as it should help the researcher acquire all the required information needed to answer

the research question. The less time the researcher spends on designing the schedule the more chance there is that the questions asked in the interview do not help the researcher acquire the right information and will lead to delays in the projects (Drever, 1995).

3.3.2 Planning and preparation

The next step according to Drever (1995), is the planning and preparation for the interviews. In this step the researcher should decide how many and who to contact, how to contact them and how to prepare for the interviews. When we entered The( )Space project the MATIX students and The( )Space companies were already cooperating within the project. It was therefore very convenient that Ola and Per were able to give us all the contact information needed to get in contact with all our potential interviewees within The( )Space.

To get a thorough idea of The( )Space cooperation we needed to get interviews with; (i) representatives from each of the six student groups, (ii) representatives from each of The( )Space companies, (iii) 2-3 representatives from the MATIX programme and (iv) the initiators of The( )Space. For identifying who would be best to contact within the MATIX programme, Ola Ekman pointed out three coordinators from the programme. To be able to compare The( )Space cooperation with the cooperation the students have individually with the partner companies, we would have to get in contact with the partner companies to ask for interviews. We decided the best way would be to go through Robert Orbelin, who is a managing director at the MATIX programme and responsible for all external contacts. Drever (1995) mentions this way in his book as snowball sampling, which is when the researcher asks his key interviewees to recommend who to contact next. Since the partner companies are around 30 each year it would have been too much to interview all of them. To match the number of interviews we did with The( )Space companies we felt that six interviews with representatives from the partner companies would give us a good idea of that type of cooperation. We asked Robert if he was able to get us in contact with six to eight of the partner companies. Unfortunately only four of the partner companies answered and were willing to do an interview.

Drever (1995) mentions the importance of avoiding bias in order to avoid criticism and to keep the quality of the research high. In the research we tried to interview only people of relevance to the case study. From The( )Space companies, we interviewed people who were involved in the cooperation and had actual contact with the students. From the students, we focused on interviewing at least one representative from each group working with The( )Space companies. From the MATIX programme, we tried to interview people who is involved in The( )Space cooperation, but also those responsible for administering and designing the education for the students.

In Drever's book (1995) he suggests three ways of approaching possible interviewees. He suggests a phone call, a visit or a letter/email. We felt the best and the most practical way would be to send emails to everyone. In the email we introduced ourselves, our

project and our involvement in The( )Space project. We explained why we were contacting the recipient and why we would like to interview him/her. We tried to give the recipient an incentive to get back to us by explaining the potential benefits of the whole projects for the actors involved. We had estimated how long each interview would take so that the recipient would know how much time he/she would have to invest in this. At last we gave the recipient the opportunity to decide when it would suit them best to meet us and do the interview. We did this since we knew some of the recipients were quite limited on time. We assumed that the company representatives and the coordinators from the MATIX would want to meet us at their offices, and we offered the MATIX students to come to the Grant Thornton office where we had access to a conference room. Drever (1995) suggests that the interviewer should offer to travel to the interviewee as a courtesy. He also notes that it can be beneficial to conduct the interview on the interviewees' home ground in order to keep the conversation as natural as possible for the interviewee. The emails were sent to the representatives from each of The( )Space companies, and the emails that we sents to the MATIX representatives were directed at the person we wanted to interview. However for the MATIX student groups we sent emails to everyone in all the six groups asking them to choose one or two representatives from the groups to come and meet us for an interview. This might create a bias and lead to more positive results, because this means that we might only be interviewing the people most interested in the cooperation. This should not have too much effect on the results since we were looking at the key elements and inconsistent answers were taken into account but did not get as much weight.

It took some time to get a hold of every interviewee that we wished to meet with. We tried to schedule not more than two interviews per day so that we would have time for writing down the interviews as well as working on other parts of the project at the same time. In table 1 all relevant information about every interview can be found. In the column called *"Coding"* each respondent has been given a codename which is used later for the analysis chapter to indicate which respondent said what.

As can be seen in the table, few representatives have been given codename N/A for not applicable. First, Björn because his involvement in The( )Space was very limited and he mainly gave us input on the academic side of the programme. Second, the representatives from the partner companies, because their input was mainly used as a benchmark to compare the two types of cooperation. Therefore their input was pulled together into one partner company perspective in the empirical findings. The results from the partner companies were not used in the tables in the analysis chapter but rather expressed in text. The rest of the table is rather self-explanatory.

Table 1: Information about all the respondents that participated in the research project.

Respondents associated with the MATIX programme						
	Coding	**Respondents**	**Representing**	**Position**	**Cooperating with**	**Date of meeting**
The( )Space companies	C#1	Göran Börjesson & Tina Pepic	Autodesk	Senior manager of global strategic projects & Intern	5Ess	2015-03-04
	C#2	Ulf Careland	Grant Thornton	Audit partner	MATIX Vittnen	2015-03-05
	C#3	Mikael Haglund	IBM	Chief technologist officer for sales and distribution in Sweden	Fans	2015-03-16
	C#4	Mats Bergh	Johanneberg Science Park	Founder and CEO	Fantastic Four	2015-04-13
	C#5	Magnus Hjelmare	Plantagon	Board member of non-profit organization part	Buller	2015-03-25
	C#6	Jonas Olofsson	Zacco	Team manager and patent attourney	XO	2015-03-10
MATIX administration	U#1	Johanna Fransson	MATIX programme	Educational administrator	-	2015-03-10
	U#2	Robert Orbelin	MATIX programme	Managing director and responsible for external contacts	-	2015-03-18
	N/A	Björn Remneland Wikhamn	MATIX programme	Academic responsible	-	2015-03-23
Student groups	S#1	Felicia & Josefina	5Ess	Student group members	Autodesk	2015-03-30
	S#2	Anders & Philip	MATIX Vittnen	Student group members	Grant Thornton	2015-03-11
	S#3	Christoffer	Fans	Student group member	IBM	2015-03-17
	S#4	Johan	Fantastic Four	Student group member	Johanneberg Science Park	2015-04-08
	S#5	Micael	Buller	Student group member	Plantagon	2015-03-23
	S#6	John & Oscar	XO	Student group members	Zacco	2015-03-16
Project initiators	X#1	Ola Ekman & Per Östling	FirstToKnow	Initiators and connectors of The( )Space	-	2015-04-16
Partner companies	N/A	Björn Lekander	Permanova Lasersystem	Marketing manager	Individual students	2015-04-01
	N/A	Emelie Hallberg	Itero Business Solutions	Marketing and communications responsible	Individual students	2015-04-01
	N/A	Kent Rundgren	Chalmers Industriteknik	Manager of sales and marketing	Individual students	2015-04-07
	N/A	Per Bergland	Meltwater AB	Engineering director	Individual students	2015-04-08
					Total number of interviews: 20	

3.3.3. Doing the interviews

For every interview we decided that we would focus on being on time so that the interviewee would not feel like we took his/her time for granted but also out of courtesy. We tried to lighten the mood for every interview with some small talk. After we had taken a seat with the interviewee and introduced ourselves, we asked for permission to record the interview and use the information for our report. We also offered to provide the interviewee with a copy of the part containing their discussions, for them to approve it before publishing the report. We felt that by doing this it would encourage the interviewee to tell all and not to hold back.

We tried to be both present for every interview, although Drever (1995) mentions that it can be intimidating for the interviewee if he/she is alone. Initially we considered doing interviews one on one but we figured it would be better for us to do it together to be better able to grasp the meaning of each interview. Either one of us would be responsible for asking the main questions while the other one would take notes and observe.

There is always a chance of the interviewees misunderstanding the questions or interpreting them in a different way (Drever, 1995). In order to avoid this we tried to state the questions as clearly as possible and using non-verbal tactics such as putting emphasis on certain parts of the question to try to signal the focus point of the question. Using non-verbal and verbal tactics like this can help the researcher steer the interview and keep it on track (Drever, 1995). If we felt that the interviewee had misunderstood the question we repeated the question and tried to put even more emphasis on the focus point of the question. In instances when we felt that the interviewees started getting a little bit off track we tried not to interrupt them while they were talking because we wanted to see if they had some ideas that we had not thought of before.

As mentioned above, the questions were designed for better understanding of the cooperation from all angles. To get a clear understanding of everyone's point of view, all actors were asked to answer from their point of view as well as what they thought the other actors' point of view was. This made it possible to compare and align the actors' perspectives as well as creating interesting points for the discussion.

When all the main questions had been asked we would open up for a short discussion where we asked if the interviewee(s) wanted to add anything they found interesting or important in regards to collaborations like these. The one of us who had not been asking the questions was also able to raise questions or thoughts. If the interviewee had nothing to add we thanked for the interview and asked if it would be alright to contact them again through email if we would have follow up questions.

The interviews varied somewhat in time depending on how our interviewees answered the questions. Most interviews were within the originally estimated 45-60 minutes. Few were closer to 30 minutes and if that happened we tried to recap the interview a bit in order to try to get something extra from the interviewee. Some interviews lasted longer than the 60 minutes and if that happened we asked if it would be alright to finish the remaining questions. Total time that we spent on interviews for this research is approximately 18.5 hours, with the average length of an interview of 55 minutes and 40 seconds.

3.4 Data collection

3.4.1 Obtaining evidence from multiple sources

One of the main strengths of case studies is the possibility to use and rely on multiple sources of evidence (Yin, 2009). In this report it was essential to use multiple sources of evidence because the idea was to look at The( )Space cooperation from all three

perspectives in order to see if the actors involved perceived the cooperation in different ways. Yin (2009) recommends researchers to use more than one source of evidence in their research to arrive at consistency in information used for drawing conclusions. We felt that by obtaining more sources of evidence we would have an opportunity to uncover deeper meaning in the data. This can be achieved by using data triangulation which establishes validity in the research by using multiple perspectives for the analysis (Yin, 2009).

In order to triangulate data we conducted semi-structured interviews as our main source of evidence. We used previous studies on university-business cooperation as well as literature about the field of study. We attended the final presentations from the MATIX students when they presented their findings to The( )Space companies. However we did not only focus on data triangulation, we also used multiple perspectives to interpret the same set of data. By interviewing representatives from each of The( )Space companies, representatives from the MATIX programme, members of each of the six MATIX student groups as well as the initiators of The( )Space project we were able to see the different standpoints on our questions. According to Patton (2002), looking from different perspectives at the same set of data like we did is called theory triangulation.

3.4.2 Creating a case study database

We felt that it was important to document all information gathered for the research in an organized way in order to have a better overview. This will make it easier to access the findings later for the researcher and perhaps other investigators who might need access to more than the published report. By documenting and organizing the collected evidence the researcher is increasing the reliability of the research (Yin, 2009).

All interviews were recorded with two devices. The recordings were all stored in a safe file in the researchers' computers and backed up on a USB-stick. Every interview was partly transcribed or summarized to a cloud storage document in Google Drive. All previous studies, articles and other literature that we browsed through and considered valuable for our study were as well stored on the Drive.

Right from the beginning of the whole process we wrote down ideas and thoughts about the research in order to not forget something important. All this has been stored on the Drive so we are able to see how our focus has shifted from the beginning and we have been able to take a step back when we have felt like we are heading for treacherous waters.

3.4.3 Maintaining chain of evidence

In order to make it clear for the reader why certain steps were taken in the research we tried to argue for everything we did in a clearly written way. Yin (2009) states that the reader should in fact be able to trace every step that the researcher took from research question to conclusion. This is done by making sure that every action taken is described and documented and the reader can check the evidence behind every action. Yin mentions in his book that by maintaining a chain of evidence the researcher can increase

both construct validity, which indicates that the right measures were used in the research, and also reliability, which provides other investigators with the operations needed to repeat the research with the same results.

In this report the reader is led through the research and should easily be able find the background of the study, scope, and purpose of the research. All literature used is carefully cited by APA style standards. As already mentioned above the interviews were recorded, partially transcribed and stored in a database which could be made available for those who need it.

3.5 Data analysis

As mentioned earlier we asked for permission to record every interview and we also took notes. Drever (1995) recommends transcribing interviews in order to avoid missing important aspects or meanings from the interviewees. Drever (1995) also mentions the downside of transcribing which is the time it takes. Since we managed to conduct 20 interviews this would have meant a considerable amount of time that we would have had to invest in transcribing instead of working on other things in the project. We decided that we would listen to every interview as soon as possible after they had been conducted and write down a partial transcription or a detailed summary from the recording and the notes. By doing this the interview was still fresh in mind when we did the summary and we managed grasp the interviewees meaning. Drever (1995) writes that when interviews are summarized and not transcribed in whole, there is a chance of information distortion. This can happen because the interviewer chooses what gets into the summary and what does not. In order to avoid getting personal bias in the summary we focused on using, as much as possible, exact wording and phrases that the interviewees had used (Drever, 1995). Before we conducted any interviews we looked online for software that could transcribe for us, since it would have saved a considerable amount of time. It turned out that the software available was not very reliable because they were not good with accents, they would have to learn how you speak and they are expensive. Although Drever (1995) states that transcription gives the researcher a greater depth into the interviewees view, we consider our method sufficient to dig deep as well.

After summarizing each interview we tried to recap together about the interview. We did this in order to see if the respondents' answers were along the lines of the previous interviews, and to see if there was something new that came up that we had not encountered before. This allowed for a continuous reflection of all information which helped with maintaining a good overview of the research's status.

When all the interviews had been conducted and summarized it was time to analyze and find answers for the research questions. In order to do this the respondents' answers were compared to see if there were some things that were frequently mentioned as responses to our questions. When we saw consistency with the answers or reoccurring themes coming up, they were grouped together in a category. Drever (1995) states the importance of those categories being valid in terms of the research. This is because the

categorization is often mainly based on the researcher's interpretation of information, and therefore it is important that the categories make sense. During this categorization phase we discussed every category in detail to make sure that we were including the right answers in each and one of them. We scrutinized the respondents' answers to make sure that we understood their meaning correctly, and in some instances we listened again to the recordings to hear if the way the respondent said something had a deeper meaning.

The answers we got often related extensively to what earlier studies have mentioned on the subject. Therefore some of the categories used were created with those earlier studies as support. We created a description of each category based on the answers, sometimes in combination with how earlier studies describe the categories. Drever (1995) states that using established categories can lead to distortion of data when fitting answers into categories. Therefore we combined those established categories and our own interpretation to create fitting new ones. In some cases the creation of category and its description was straight forward, but others were more difficult to create because of the similar meaning of answers. We feel that even though some categories are similar, it was important to separate them in order to display the meaning of the respondents' answers. The categories, and their descriptions, can be found in the tables in the analysis chapter.

3.6 Quality of research design

When doing research it is important to pay close attention to maintaining the validity and the reliability of it. These factors are important to be able to judge the quality of the research (Yin, 2009).

3.6.1 Construct validity

To increase construct validity there are three tactics possible. Two tactics are related to the data collection phase, already mentioned earlier in the chapter; (i) using multiple sources of evidence and to (ii) maintain a chain of evidence (Yin, 2009). Those two tactics are explained in detail in the data collection section here above. The third tactic is to have key informant review the draft of the case study's report (Yin, 2009). We began all our interviews with offering our interviewees that they could review what they had said before we would publish the report in order to avoid any misunderstandings in interpretation. The interviewees were then able to approve what we had written or suggest minor changes.

3.6.2 Internal validity

To establish internal validity the researcher has to make sure that it is valid to draw conclusions from the study. Low internal validity can be caused by, e.g. selection bias and it can threaten the validity of the research's analysis (Yin, 2009). This case study was based on a cooperation between the MATIX students and The( )Space companies. When we entered the project the actors were already cooperating and we got in contact

with them with help from our supervisors. We were not able to randomly choose who to interview because of limited number of participants involved in the cooperation. It was only with the student where we were able to ask the groups to choose representatives that would come and meet us for an interview. Other tactics we used was to focus on creating a coherent bond between the case study research and the results. This was done to make sure that the design of the whole research and its execution makes sense for everyone who reads the report, and that the analysis of the results follows in a natural way. According to Yin (2009) the researcher should focus on analyzing the data in a way that shows that there is a consistency between the obtained research results and the chosen approach to the study.

3.6.3 External validity

To increase external validity the researcher has to make sure that the research design was performed well. If the research has high external validity it means that the findings can be generalized in regards to other similar studies and other researchers would have come to the same conclusion by using the same research design (Yin, 2009). Yin (2009) states that external validity is dependent upon internal validity. This means that if a research has low internal validity it can be very hard to draw conclusions from the study in a valid way, and therefore it is hard to generalize the findings. As described above we did as much as we could to boost internal validity as well as we kept every source of information related to the study stored in a cloud database on Google Drive. This made it easier to keep track of all the information gathered and to get it together for analysis.

3.6.4 Reliability

There are two tactics available that the researcher can use for increasing the reliability of the research. First tactic is to use what Yin (2009) calls the case study protocol which should guide the researcher in the evidence collection for the research. The case study protocol relates very much to what Drever (1995) calls the interview schedule and has been described in detail in the interview section in this chapter. The case study protocol in this research was a document stored in the Drive. Second tactic is to develop a case study database (Yin, 2009). The case study database created for this research has been described in detail in the data collection section in this chapter. By using these two tactics the researcher can increase the reliability of the research meaning that other researchers should be able to use the same method in their own study and reach the same findings and conclusions.

3.7 Case study criticism

There are certain criticisms that often come up when research is based on case studies. The most common is the fact that it is up to the researcher to interpret the specific phenomenon in in its context. Critics say that it is easy to go off track from the research design or even that the researcher can easily be influenced in his interpretation, leading to biased findings. The reason for this this criticism can perhaps be linked to the lack of scientific text about case study procedures (Yin, 2009). In this research we did our very

best to follow the procedures that we based our study on as well as being as objective as we could when it came to collecting and documenting the evidence.

3.8 Research limitations

The cooperation between the MATIX students and The( )Space companies took place within the same timeframe available for conducting this report. On the one hand, this made it possible to conduct the study on a project when it was active, meaning that actors involved had fresh input on the cooperation. On the other hand, this could have a potential impact on some of the results because there is a chance that some benefits or obstacles were not evident at the time the interviews were conducted. Furthermore, the fact that for some actors motivations can be interpreted as expected benefits, made it harder to separate expected benefits (motivations for engaging) from realized benefits. The researchers feel that the ideal way to overcome this limitation would have been to conduct two separate rounds of interviews. The first round would have been conducted before the actual cooperation began to study the motivations. The second round would have been conducted shortly after the cooperation was terminated where benefits and obstacles would be looked at, as well as suggestions for improvements. This would have made it clear when actors were talking about expected benefits (motivations) and when they were talking about realized benefits. This would have been near impossible for this research considering the time it took to get, and conduct, one round of interviews with all the actors involved.

Another limitation that potentially could have an impact on the results is the fact that English was the main language used for the research even though it is not the mother tongue for anyone involved in the research. In qualitative researches like this one when analysis is based on interpretations there is always a possibility that some meanings get lost or people misinterpret questions. Even though the standard of the English language in Sweden is high there is always a possibility that language barriers affect meanings or interpretations. Since the report was to be written in English the researchers decided that it would be best to stick to that language throughout. Even though interviews would have been done in Swedish there would have been a possibility of misinterpretation in the translation.

4. Case study background

Information for this result section was gathered through interviews with Ola Ekman and Per Östling who are the initiators of The( )Space concept, and Robert Orbelin, Johanna Fransson and Björn Remneland Wikhamn who are coordinators and representatives from the MATIX programme.

4.1 The( )Space

The( )Space was initiated in 2014 by Ola Ekman and Per Östling with the aim to create a more innovative and sustainable society. Both of the initiators have been working a considerable amount with industry and university in collaborative efforts, especially by involving students in projects. They are driven by the feeling that today's innovation systems are lacking something to bridge the gap between different actors in the society, e.g. university, industry and government. The intent with The( )Space is to create an innovation platform where this gap is closed by bringing those different actors together to share knowledge in order for them to develop and grow new ideas, concepts and innovations. Furthermore, the concept is still under development and the initiators are involving students from various academic disciplines to help them create a holistic view of the The( )Space, which they aim to launch in autumn 2015. The hope is that they can continue to bring in students with different backgrounds and from various universities for the coming years in order to continuously develop and improve The( )Space. Also, they aim to act as intermediaries that will connect different actors in the society together.

In the beginning of 2015 we were asked to work with them and assist in developing The( )Space. When we joined their project, Ola and Per had involved six companies from various industries that were interested in the project. The companies were:

- ***Autodesk,*** a multinational corporation developing computer design software solutions for different industries.
- ***Grant Thornton,*** one of the world's largest independent assurance, tax and advisory firm.
- ***IBM,*** a multinational corporation creating technological hardware and software products.
- ***Johanneberg Science Park,*** foundation created by Chalmers University of Technology and the City of Gothenburg with the focus on creating conditions for sustainable regional growth.
- ***Plantagon,*** a Swedish firm focusing on leading innovation for the urban agricultural sector.
- ***Zacco,*** an international consultancy for intellectual property strategies.

Most of these companies came in through previous personal contact with either Ola or Per. Furthermore, Ola was working at Gothenburg School of Business, Economics and Law as a guest lecturer and source of entrepreneurial inspiration for the students of a graduate programme called MATIX. Therefore, he also had personal contact with the

programme administrators and through that contact the first specific university-business cooperation within The( )Space was initiated, between MATIX and the aforementioned companies.

4.2 MATIX

The MATIX programme is one of the business graduate programmes available at the Gothenburg School of Business, Economics and Law. Unlike the standard two year Master's programmes that are taught in English at the business school, the MATIX programme is a one year Master taught in Swedish. The name MATIX is an acronym for the Swedish name of the programme, *Management av Tillväxtföretag* (e. *Management of Growth Companies*). The programme was founded as MATIX in 2001-2002 but it has been around in different forms and under different names for approximately 30 years, always as a part of Gothenburg University.

The MATIX programme aims to admit 30 students each year and the demand for those 30 seats in the programme exceeds supply. This year, 137 people applied and the number of applicants has been slowly rising for the past couple of years. To get admitted the students have to go through an admission phase similar to job recruitment phases with CVs, extensive cover letters as well as being interviewed by the programme's coordinators.

During the year the students have six 7.5 credit courses that they have to complete and a 15 credit thesis at the end of the year. The students attend lectures, read articles, and learn about theories, methods and tools of business administration. In the beginning of the year they are split into six study groups with five students each. The study groups then work together on cases and assignments or just to reflect together on what they have learned.

The main difference between the MATIX programme and other Master's programmes is that every year each of the 30 students gets matched with a partner company that they work with during the academic year.

4.2.1 MATIX cooperation with partner companies

This is the core idea of the MATIX programme, to offer students the possibility to learn about the theories, models and tools at the university while using what they learn and applying it in a business setting. Therefore, the students get a chance to deepen their understanding of what they are learning at the university and also get a chance to obtain valuable practical experience.

Every year the programme aims to partner up with 30 small and medium sized enterprises (SMEs) that are looking for a knowledge injection from a new perspective. The companies that get involved are able to broaden their network by creating a connection to the university, other partner companies and the MATIX students. The companies who become one of the 30 partner companies pay a registration fee of 39.500 SEK. This is part of the financing model for the MATIX programme, whereas the

other part comes from Västra Götalandsregionen, which is running the growth programme that the MATIX is a part of.

In the beginning of each academic year there is a match-up meeting where the students and the companies meet. At this gathering, the students can talk to the companies and they can come to an understanding of each other's expectations. After the match-up meeting, both students and companies choose who they would prefer to cooperate with for the coming academic year. Finally, it is up to the MATIX coordinators to match individual students and companies together.

When the pairing is done, the companies can expect the students to come in and work at the company for two whole days per week. The students and the companies together form assignments for the student to work on. These assignments should relate to the courses that run throughout the year. At the end of each course the students have to write a report that they send to the teacher of the course. These assignment reports are used to grade the students since there are no written exams in the programme. The idea is that the students can learn about theories, models and tools at the university which they can learn to use by applying them to their partner company. This learning by doing aims to help the students to see how theories, models and tools have to be adapted to different businesses because they usually do not fit in as they were defined in the text books. Learning by doing and learning from mistakes can also help the students to remember better what they have learned because they have been given a chance to actually apply it in a real life business setting. The assignment that the students work on therefore have three goals; (1) an academic purpose, meaning that it has to correspond to what the students have been learning in a course so that they can write a report, (2) a practical purpose, it has to be useful for the companies in order for them to learn, improve and grow, (3) a purpose for the students, to give support to what the students have been learning, to give them a deeper understanding, and improving their practical skills and experience. During the year the students should be working at a MATIX partner company for two days a week, where one day should be focused on the academic purpose and the second day focused on the practical purpose. In combination, both days should contribute to fulfilling the purpose for the students.

4.2.2 MATIX cooperation with The( )Space companies

Cooperation with businesses in the society is the core idea of the MATIX programme and it can be carried out in various ways, a common example within the programme is case work with companies. The programme's coordinators are very open for the right companies to come in and come up with cases for the students to work on. As mentioned earlier, The( )Space project was brought into the MATIX programme through Ola Ekman who has been working with the programme as a guest lecturer and an advisor for some time because of his involvement in the entrepreneurship department at Gothenburg University. The programme coordinators were interested in the project and wanted to use it to offer their students a new perspective.

Earlier mentioned study groups were assigned to one company each. Each of the six companies then gave their group a task. Some of the groups participated in defining the tasks with their companies. The tasks were very different, ranging from studying internal operations, e.g. culture at the companies, to finding new markets for the companies.

The project turned out to be larger and more time consuming than they first anticipated but they decided to go with it anyway. Due to the size of the project the MATIX coordinators decided that it would be running from beginning of January till late March when the students were to present their tasks and their findings. Attending the presentations were: representatives from the six companies, all the MATIX students, MATIX coordinators and teachers, Ola and Per, and also other students involved in The( )Space.

While the students were working on this cooperation they also had their partner companies to work with, they had lectures to attend to as well as other assignments to work on. Time available to work on The( )Space cooperation was therefore slightly less than some of the companies and the students had expected. The students therefore had to prioritize to some degree how much they could work with the project.

5. Empirical findings I

The empirical findings in this chapter are presented in a manner that shows the cooperation between The( )Space companies and the MATIX students by grouping each company together with its corresponding student group. Following are the empirical findings from the other actors involved in The( )Space.

5.1 Cooperation #1: Autodesk AB and 5ess

Information for this result section was gathered through interviews with Göran Börjesson and Tina Pepic from Autodesk, and Felicia and Josefina from the 5ess student group.

5.1.1 Task

The task that Autodesk wanted to work with the students on was based on an in-house project that they were interested to look further into. Autodesk was in a transition phase moving from licenses in a box to more subscriptions, rental and cloud based services. This meant that the company had to change their entire sales and marketing models. The marketing model was going to change from a shotgun marketing model to a nurture marketing model with a focus on building up a relationship with the potential buyer. Göran's team at Autodesk was tasked to create an educational program for marketers to be trained in nurture marketing. Their idea was to base this educational program on internal crowdsourcing because they did not have too much funding to work on this or to outsource the project. Nonetheless, they had the ideas and they knew that if they included others in the project they would get a chance to develop even better ideas. They wanted the 5ess student group to help them answer questions on how to accomplish this in a successful way. The students found the task to be massive but Autodesk was prepared to invest a lot of time and people to work on this with the students. However, it appeared impossible for the students to meet the company's expectations because they had other obligations to attend to. The student group felt like they were in the middle of a big miscommunication situation but eventually the group and Autodesk managed to narrow down the task to identifying information that the company had not been able to identify before regarding nurture marketing and transformation.

5.1.2 Motivations for engaging

Göran's motivations were that he would be able to work with creative students and that Autodesk would acquire fresh ideas for the project from the students. Autodesk would then complement the students' ideas with their experience. Before Göran met the students he thought that they would be coming in and working almost full time with Autodesk during the project. This was something that the students were not able to do because they had their lectures to attend to, assignments to work on and their partner companies to work with. Felicia and Josefina, from the student group, thought that Autodesk was motivated to engage in the cooperation because they saw it as a part of

their social responsibility and by cooperating with the university they could fulfill that responsibility. They also felt that Autodesk was looking for something concrete from the students but with an academic background.

Moving on, Felicia and Josefina were motivated to work with Autodesk because they found it to be an exciting opportunity to get an international experience of working with a global team. In addition, they felt that Göran was inspiring to work with and that motivated them to do well. In Göran's mind this cooperation was the perfect setting for the students to grow because they were given the opportunity to work hard with Autodesk and gain practical experience.

5.1.3 Benefits of the cooperation

The benefits for Autodesk from cooperating with students were to get people in with fresh education and minds, work with new backgrounds and to gain an insight to future customers. These benefits combined were a tool to help the company learn new things from someone new coming in and questioning how things are done, which could show opportunities to improve. Furthermore, Göran mentioned the benefits of getting to know students who potentially might become future employees since they have gained experience in the field and their skills should better match the skills needed to work at Autodesk.

Although, he stated that the project's structure and the limited time that the students had to work on it prevented the possibility for everyone involved to reach the full potential of benefits available in the cooperation. He was clear on that there was no one to blame for this but that there were some misunderstandings from the beginning and that the perception of the project from the different actors was not aligned. He believed that this could have been avoided with better planning from the start.

Felicia and Josefina stated that it was obvious that Autodesk wanted much more from the beginning than what they finally got. Nonetheless, considering the restriction on time for the group they thought that they did quite well and believed that the results they gave to Autodesk seemed to have planted a seed. Furthermore, they mentioned that Göran told them after the presentation for Autodesk that he was satisfied despite the rough start. Other than that, Felicia and Josefina thought that Autodesk saw the cooperation with the university and the students as a marketing opportunity and a way to get to know more people who might become their employees or customers in the future.

For them personally, Felicia and Josefina felt that they had grown as individuals from being put through a challenging task, which was also fun to work with. Furthermore, they gained confidence by delivering something new and valued to the company even after the hectic start where they had to stand up for themselves. Also, it was rewarding for them to have had the opportunity to see how a global team functions in an international environment. In some sense they also saw it as an opportunity to network and they mentioned that they would be interested in working with the company in the

future. Göran emphasized that he thought that the full potential of the benefits available in this cooperation was not reached but that the students were given a great opportunity to develop their skills and gain practical experience. Furthermore, Göran added that the students were able to establish relations with people within a highly dynamic company, which also is a world leading actor in Design Software Development arena.

5.1.4 Obstacles in the cooperation

In Göran's mind there were no obvious obstacles but the expectations were set wrong from the start, stating that there was a mismatch in expectations between actors. Furthermore, Tina added that another major obstacle seemed to be time, or a mismatch in time estimated for working on the project. For instance, they initially thought that the students would work full time for 12 weeks but the students had other commitments at university as well. Göran stated that better planning and communication flow from the beginning could have worked well in overcoming these obstacles, so that expectations would not be set too high and resources wasted. He was open for cooperating more with the university in the future, but not under the same circumstances. Felicia and Josefina said that from the beginning Autodesk was prepared to invest a lot of time and resources for this project and the fact that the group could only spend a limited amount of time meant that Autodesk had to reorganize substantially. Moreover, they stated that Autodesk's efforts were not met and they initially did not get what they expected. In fact, they pointed out that Autodesk was considering dropping out of the project. Nonetheless, Autodesk decided to stay in the cooperation and changed their focus instead. In the end, Felicia and Josefina are satisfied with what they could provide for Autodesk.

The major obstacle for the students that Felicia and Josefina thought of was the mentality of the group. For some of the group members it was like the motivation to work on the project was lost after the first meeting with Autodesk. It was during this first meeting that the students realized how much Autodesk expected from them and they had to tell Göran and his team that the student group would not be able to spend that much time on the project. They felt that this created high tension and the students were right in the middle of everything. As a result, some of the group members had to take on a bigger responsibility in the group work. Another obstacle that the students experienced was lack of communication; they were basically rushed into the project without knowing anything, which created bad energy. Also, there could have been a little more structure and what was expected of them could have been made clearer. Göran said that it was an obstacle for the students to have other things to work on simultaneously and that they did not have as much time to work on the project as he had hoped on the project.

5.1.5 Drivers for university-business cooperation

Göran said that the key driver for fruitful and long lasting cooperation between university and businesses is that all parties are getting something really useful out of it. He felt that people coming in to the company from the university should be active, ready to take on challenges and contribute. Finally, he stated that a driver for cooperation is the shared learning of the cooperation. The company learns something new from the freshly minded students and the students learn something new from the experience.

Felicia and Josefina stated what they found to be the five most important drivers of good cooperation:

- Good communication – everyone involved knows what is going on.
- Time – everyone involved has to have time that they are willing to invest in the project to plan and understand each other.
- Goals and ambitions – goals have to be set so that everyone can see the benefits of striving for them.
- Respect – everyone involved has to be respectful of the other partners' situation.
- Interest – everyone involved must want to be in the cooperation.

5.1.6 Changes for improved cooperation

Göran did not feel like Autodesk had to change in order to improve future cooperation but he wanted to incorporate students more because he feels that it is a chance for students to work in reality and get training. Also, he thought that it is up to the students to come to Autodesk and adjust to the company's working methods. Felicia and Josefina were both very satisfied with Autodesk in this cooperation. They felt that the company was a little bit too eager to get the students to become part of the company, but the students saw themselves more as consultants that could look in from the outside with objective eyes.

Felicia and Josefina thought that the MATIX coordinators could have better integrated The( )Space cooperation into their schedule and done some basic research of what The( )Space was all about. They said that the students would need to know how the projects link with the courses and how the credits would affect their grades. In this project they did not have a clear idea of which courses the project was a part of or how much credits they would get for it. Göran mentioned again that there needs to be better planning and communication from the beginning between everyone involved in the cooperation.

5.2 Cooperation #2: Grant Thornton Sweden AB and MATIX Vittnen

Information for this result section was gathered through interviews with Ulf Careland from Grant Thornton, and Anders and Philip from the MATIX Vittnen student group.

5.2.1 Task

The initial idea was to find new ways for the company to grow but they wanted to look at things that they have not thought of before. Therefore, they asked the students to create options for them to focus on. The students brought twelve ideas to the table, which they together with Grant Thornton boiled down to five focus points. Together, they finally decided to go with one idea that fitted the company and the students very well. The students were to look at culture and values at Grant Thornton to see if there was something they could improve that would help the company grow. Ulf said that they felt that this project would be very interesting to participate in and they decided to give it a chance with the hope that it might open up answers that lie right in front of them and only needed external influence to be revealed.

5.2.2 Motivations for engaging

Ulf said that Grant Thornton was excited to be able to work with the MATIX students but when they entered they were not completely sure what could come out of the cooperation. They were hoping to get the students to come in to take a critical look at the business and suggest ideas for Grant Thornton to grow. Anders and Philip felt like the motivation for Grant Thornton to engage in the cooperation was that it was an opportunity to get an outside perspective that was not too costly.

The students in the group were motivated to work with Grant Thornton because they found it to always be exciting to collaborate with the actual business community. Anders and Philip said that the opportunity to network was something that motivated them as well. Ulf was not sure what motivated the students to engage in the cooperation.

5.2.3 Benefits of the cooperation

Ulf said that they were hoping for new ways and ideas to reach the dream market share of the local market at ten percent. In general he thinks the major benefits of cooperation like this should be faster growth for the company due to the new perspectives coming in. Also, it could provide a better representation of the Grant Thornton brand because by involving more people to work with the company, the more the reputation of the firms grows. Furthermore, Ulf mentioned the benefits of building up relationships with the MATIX students who might, in the future, work at the firms that Grant Thornton focuses on building up relationships with. Anders and Philip thought that Grant Thornton benefitted from the cooperation because the students came in and asked questions that could give the company a new perspective on their business.

Anders and Philip felt that the main benefits of the cooperation for the students was to get in contact with good people and get insights into real business life and procedures. Ulf thought that the students can gain experience from working in a real life setting where their skillset is being improved. Even though Grant Thornton is not looking to hire the MATIX students, because of their business administration background, Grant Thornton could offer them good experience and improved skillset of working in an agile environment.

5.2.4 Obstacles in the cooperation

The biggest obstacle for Grant Thornton in the cooperation was time, since the cooperation ran over the time of year when they were working on tax returns. It was therefore a constraint for them on how much time they could invest and meet with the students. Ulf mentioned that before they engaged in the cooperation they did not discuss how much time they were willing to invest in the cooperation, but that they would do what they could to help the students, e.g. meeting with them after hours and during weekends if needed. Anders and Philip also thought that the main obstacle for Grant Thornton was that they had trouble finding enough time for the project. In general, they had heard that some of the companies had troubles defining the tasks for the students and how much they could push the students.

Anders and Philip felt like there was a lack of planning for the project, which made it feel like a test run. Therefore, they thought that there should have been more planning, both from the company and the university side. Furthermore, they felt like there was a lack of support from the university, which meant that it was mainly up to the students themselves to make it work. They said that they could have benefitted from meeting with other groups to discuss and revise. Lastly, Anders and Philip mentioned that some of the student groups had troubles understanding the task given to them by the companies and what the company was expecting. Ulf similarly said that he thought that the biggest obstacle for the students was lack of time to work on the project because they had other work to do.

5.2.5 Drivers for university-business cooperation

Ulf thought that the key drivers for fruitful and long lasting cooperation are:

- Engagement from both sides – someone from Grant Thornton has to be continuously working with the university and the university has to be open and engaged for the cooperation.
- Truthful and open communication – so that the students would be able to analyze and come up with a conclusion that was based on right and true data.

Anders's and Philip's ideas of key drivers are:

- Matching expectations – at least knowing what the other actors are expecting to get out of the cooperation.
- Planning and structuring – better planning and structuring of projects will make the process more fluid.
- Availability - actors need to be available and willing to invest time on cooperating.
- Honest communication – between actors and about the project.

5.2.6 Changes for improved cooperation

Ulf said that Grant Thornton would like to be involved in cooperation with the university but that they are facing such a heavy competition from the "Big 4" (PWC, Deloitte, Ernst & Young, and KPMG) that they are left behind when it comes to connections with the

university. He further mentioned that they had tried to approach the university before but it has proved hard for them. He believed that Grant Thornton's resources could be of value to the university and that they probably should try more to offer the university to benefit from their resources, e.g. by offering teaching, guest lectures, seminars and other types of knowledge transformation. Anders and Philip suggested that Grant Thornton should allocate more time and try to be more available for the students in order to improve future cooperation. They also mentioned that Grant Thornton should have a more defined task for the students to work with, although they saw the benefits of a more abstract assignment as well. They thought that a more defined project would make the process easier for both sides to work on it, but a more abstract project could help with finding new angles.

Anders and Philip felt that the university should schedule workshops for the MATIX student groups to meet, discuss and reflect. Also, for this kind of cooperation the students should be able to work with lecturers who are more experienced with consulting, perhaps have one lecturer assigned to each group. Ulf emphasized that they wanted to cooperate more with the university but he feels that the doors have been closing on them and he would like the university to invite Grant Thornton to cooperate more with them.

5.3 Cooperation #3: IBM Svenska AB and Fans

Information for this result section was gathered through interviews with Mikael Haglund from IBM and Christoffer from the Fans student group.

5.3.1 Task

Mikael said that the task they were working on with the students was to study what industries in Sweden would benefit from being able to use Watson in Swedish. Watson is a product from IBM, which is a series of cognitive systems that can interact with human beings in a natural way, understand natural language, read texts and use the information to advise someone based on the information it has gathered and processed. At the moment it is only available in English and the next languages to be added to Watson's capacity are Spanish, Brazilian Portuguese and Japanese. The Swedish language might not be very highly ranked in comparison to other languages but if IBM in Sweden would want to build their business case they had to start looking at the possibilities that Watson in Swedish could bring to different industries. The task was quite broad and offered the students a chance to explore many different industries, and Mikael hoped that it would bring IBM some valuable information that they could use to build their business case. Initially, the task was a little bit unclear because Mikael was not clear on what they were supposed to contribute with regarding time and results. However, he found that to be what reality is moving towards. He said "the nicely defined projects that have a good structure and where the result is obvious from the start are getting fewer and fewer." Also, he stated that "sometimes it is funnier to start running first and then see exactly where you think you are going." The Fans student group suggested to Mikael

that they would start cooperating with the XO student group that was working with Zacco. The cooperation between the two groups was settled on looking for applications for using Watson within intellectual property (IP).

5.3.2 Motivations for engaging

Mikael mentioned that there is a strategic wish from IBM international to collaborate with universities. IBM wants to contribute to the society and a way to do that is by helping the university. Mikael saw a potential for value, but he also mentioned that it did not really matter if the students would fail to find something because that could indicate that there is no market for Watson in Swedish. Lastly, he mentioned that they saw an opportunity to be active with young people in order to build relations with possible future employees and potential future customers. Christoffer was not clear on what motivated IBM to enter the cooperation but he mentioned that they seemed positive towards the students and open for looking out for future recruitments.

Christoffer said that it is motivating for students to work with dynamic companies within interesting industries. He was especially interested in the Watson technology and saw it as a benefit to be able to learn about it and work with it. Also, he also mentioned that the cooperation was a chance to apply knowledge and Mikael thought that, in general, the chance to cooperate with dynamic firms in the society should be a motivating factor for the students.

5.3.3 Benefits of the cooperation

Mikael felt that there was a certain "give back" part that came from the cooperation, which for IBM was to get the chance to work with students and give back to the society. Furthermore, he also stated that the cooperation was a chance to build up IBM's brand by working with young students that might become future employees or customers. Moreover, Mikael talked about that IBM benefits from cooperating with students since it gives them a chance to scout for promising people. Lastly, he said that IBM benefitted from the cooperation because of the input and ideas from fresh minds that IBM was getting and could start developing. Christoffer thought that IBM benefitted from the cooperation by getting new and fresh perspectives on their problems and hopefully they got usable results. Furthermore, Christoffer mentioned that Zacco and IBM benefitted from getting connected together, but maybe mainly Zacco because they got a chance to completely change their business model regarding IP by using Watson. Also, Christoffer found that since IBM seemed quite open for looking at possible future recruitments that they had benefitted by getting in touch with the MATIX students.

Christoffer found that the cooperation benefitted the students by offering them a chance to get new perspectives from looking at dynamic companies and exciting new technologies. He also mentioned that students benefitted from getting in contact with people at the company. Mikael said that students benefit from cooperating with companies because they are gaining experience from working at a business level where they can, e.g. gain experience in how to deliver results in an industry setting as well as

learning how to interact with people in business. Furthermore, he thought that, in some sense, this gave students an opportunity to learn how to let go of academic values where they have to have references or data for everything they say or do. He said that in an industry setting people often have to act with help from limited amount of data, or even acting on instinct and then they have to be able to deliver thoughts to people and persuade them to believe them.

5.3.4 Obstacles in the cooperation

Mikael felt that how the project was introduced to them and how quickly they entered it was an obstacle for IBM. He thought that initially the communication was not fully formed. Moreover, he said that how the original material from Ola and Per was introduced to both the companies and the students created some confusion. Another obstacle that Mikael mentioned was time and space needed to work on the project. He said that both Frode and he, who were the two most involved persons from IBM in the cooperation with the students, were almost always working at separate offices and it was very difficult to get them in the same room. Mikael said that they really wanted to meet the students because he feels that it makes it much easier to work with someone that he has met with at least once, but after that it is fine to work through mail or telephone. He further added that he felt that this may have been a learning experience for the students since they got to see how difficult it is becoming to get people working in dynamic global corporations to sit in the same room. Christoffer thought that the greatest obstacle for IBM was time since both Mikael and Frode had a very busy schedule with a lot of traveling. He also added that he thinks that the project was not clear to IBM to begin with.

Christoffer felt that the biggest obstacle for the group was to understand the expectations and what they were to do because it was extremely open in the beginning. The students had difficulties getting to meet their contact at IBM because they were so busy. Christoffer also thought that their IBM contacts did not have a good idea either about what The( )Space was about, which might have been the reason for the task not being very specific in the beginning. He further added that this resulted in a lot of time being spent on trying to figure out what they were looking for. However, after quite some time they managed to define what they would focus on and Christoffer felt like after that the cooperation worked better. He also thought that how some students focused on the project could have been an obstacle. Because in his mind, some were thinking more about how many pages they needed to write, rather than focusing on delivering value to the company or learning from the project. Lastly, he thought that an obstacle for the students was how unclear the project's connection was to courses, which resulted in them not knowing who to talk to for assistance. Nonetheless, he added that he felt that the students should be able to figure these things out by themselves. Mikael was not sure what the obstacles were for the other actors in the cooperation but thought that it probably affected the students that he and the others at IBM were busy.

5.3.5 Drivers for university-business cooperation

According to Mikael the key drivers of university – business cooperation are:

- Common goals – something that the actors involved want to achieve together.
- Open communication – focus on building up a good relationship with good communication.

Christoffer said that it is important that there is a visible win-win situation deriving from the cooperation. He mentioned that the university can basically only benefit from cooperating with companies in the society. The companies should benefit from getting exposed to a pool of talent, but they would also want to see some results that they can use. Christoffer also mentioned the importance of clear communication between all actors.

5.3.6 Changes for improved cooperation

Mikael said that they could do better preparation from their side and establish better communication between everyone in order to improve future cooperation. In this project Mikael only spoke to Per Östling who acted as an intermediary between the company and the university. Christoffer suggested that IBM could be more available for the students. Furthermore, he felt that the students should have gotten some minimum amount of time to spend with the company. Christoffer also mentioned that the company could communicate their expectations better.

According to Christoffer the university should allocate more time for the students to work on projects this big. He also felt that the university should make it clear which courses the project belongs to and integrate it better into the programme. He would like to see the university structure the projects better, and there should be at least a hint of what the university expects from the students. Mikael said that the university should inform everyone involved better about what they wanted to get from the cooperation. He believed it would have helped if the project would have been specified better. Moreover, he felt that there is a need for better defined goals for everyone involved regarding what they want to achieve and that could be a good thing to decide on right from the beginning.

5.4 Cooperation #4: Johanneberg Science Park AB and Fantastic Four

Information for this result section was gathered through interviews with Mats Bergh from Johanneberg Science Park and Johan from the Fantastic Four student group.

5.4.1 Task

Mats said that there is a very physical component in developing a science park and when it comes to attracting companies to the science park they rely heavily on this physical component. At the same time they are experiencing a much more connected world, which means that JSP could easily use competences from all over the world to contribute to JSP's projects but these competences would not contribute to local economic growth.

They therefore asked the students to look at the trends of a more connected world and how JSP should position themselves if they would go into more virtual collaborations and product development. Furthermore, they asked the students to look at the implications of this and how it would affect their core assignments in the Gothenburg region. This task was part of an actual challenge that JSP faces, but the challenge was not very imminent. This meant that they would not need an actual answer right away but in a couple of years they would need an answer and therefore it was good to start thinking about it early on. The group felt like the task they were given was quite broad but they were then free to focus on whatever aspects of it they pleased and narrow it down to more focused sub questions.

5.4.2 Motivations for engaging

Mats mentioned that the science park has a very technical background but that modern science parks needed to be more influential when it comes to attracting business schools and other different kinds of competences. For that reason Mats was excited when they were given the opportunity to participate in this project and cooperate with the university. As mentioned, they were interested in getting the students in to investigate solutions to not so immediate challenges. Mats said that another factor that was motivating for JSP to cooperate with the MATIX students was the fact that they would be getting business administration students in and he emphasized that they want the student perspective coming in to the science park to be multidisciplinary. Johan from the Fantastic Four student group said that he thought that JSP was looking for a different point of view at their problems and he added "they have the Chalmers[1] view but I think that they wanted more of a Handels[2] view". Furthermore, Johan felt that JSP was expecting quite much from the students, but he thought that may have been because they did not know how much the students had to do besides working on The( )Space cooperation.

Johan thought that it was motivating for the students to work with a real company on a case because usually when they would do case work at the programme they would not be as involved with the company as in this case. He mentioned that the people at JSP had very technical backgrounds and that it felt like they were hoping to get some better insight into the business administration aspect of how to solve their problem and it was motivating for the group that the people at JSP felt really invested and interested in hearing what the students had to offer. Personally, Johan saw it as an opportunity to gain experience that he could add to his CV. Mats hoped that the student saw it as a chance to build a network since JSP is connected to many big companies and there is a great potential for networking.

[1] Chalmers is a technical university in Gothenburg.
[2] Handels is short for Handelshögskolan, which is the Swedish name for the School of Business, Economics and Law in Gothenburg.

5.4.3 Benefits of the cooperation

Mats said that JSP is always looking for new connections with different departments within the universities because they need the different competences from all departments to help them with all their ongoing projects. This project gave them a new connection, and Mats even mentioned that they have considered participating in the MATIX programme as a partner company in the future. Also, Mats mentioned that despite the short period of time the students had to work on the project, they managed to influence JSP in various ways by looking at the company from a new perspective and asking questions. Johan thought that JSP mainly benefitted from getting new views on different things within their organization. He felt that the ideas that the group came up with was something that could make the people at JSP think in different ways which could put a new twist on how they solve problems or work on projects in the future. He continued by saying that some of the other companies involved in The( )Space cooperation might have benefitted from networking and looking for potential future employees, but he did not think that was the case with JSP since they only have a few employees, all technically oriented.

Johan said that the students benefitted from the cooperation with JSP by meeting a new company and working with them on something that the students had no previous experience of, which was very rewarding. He added that experiencing a different kind of business and gaining experience and skills in a broader field was something that the students could benefit greatly from. Johan also mentioned that he learned a lot from his cooperation with the group because the group was split and they were arguing heavily about how they should do things. He felt that they learned how to work in a group and how to solve conflicts which is something that he thought would be valuable in the future. Mats felt that the cooperation with the students and their contribution was successful. He mentioned that in a cooperation like this the students could benefit from getting a feel for potential employers and if the education they have chosen is the right for them. Mats felt that the MATIX programme is doing good things and he thought that there should be more of these programmes available today.

5.4.4 Obstacles in the cooperation

Mats did not feel that they had any obstacles or problems in this specific cooperation with the MATIX programme and the students. He had the feeling that the task that they gave the students was very reasonable and the fact that they did not actually need a precise answer that they could use or implement right away but rather an idea that they could start thinking about for the future was a factor in that there were no obstacles. Although, he mentioned that the time that the students were given to work on the project was quite short and he had hoped for a little more time with the students. Johan said that their connection with the company was no issue and instead he thought that the people at JSP were very helpful and that they tried to do everything they could for the student group. He also mentioned that when they first met with the company it was obvious that they had higher expectations than the students were able to fulfill. Johan

said that he was surprised by how they reacted at JSP when the group told them they would not be able to work as much as JSP had thought. He was surprised of how quickly they adapted and he could not feel that they were disappointed in any way. He felt that it was more the group that was disappointed with themselves for not being able to do all that they wanted to do.

Johan said that the student group was split and that there had been arguments within the group on how to work on the project, which was their main obstacle. Two group members actually wanted to work with the project full time and leave other things to deal with later, while the two others wanted to find more balance between all tasks. Another obstacle for the group was that they did not really know what they were supposed to do, which caused even more arguments within the group. They had to figure out what they could do to solve JSP's problem or questions. Lastly, he mentioned that the students felt like they could not be as involved and engaged as they wanted because of how much they had to do besides working with JSP, he thought that the programme could have dropped something to allow the students to get more engaged. On the same note, Mats said that the major obstacle for the students was that they had other tasks and assignments to work on at the same time, which made the project a part time thing for them. He thought that this could have led to a variation in the quality of the work of all the different tasks that the students were working on. Mats felt that it is the university's job not to put too much projects for the students to work on at the same time. Again, Mats mentioned that the task they gave to the students did not need an accurate answer right away and that they were happy with the results that the students gave them. Nonetheless, he continued to say that if they would have decided to give the students a task where they would have needed an accurate answer right away, he believed that they would have been a little bit disappointed with the results because of the students' limited amount of time to work on the project.

5.4.5 Drivers for university-business cooperation

Mats talked about how important it was for them to keep an open dialogue with the students. He also mentioned that it is all about balancing expectations in order to have a fruitful and long lasting cooperation and he thinks that they managed to do that by discussing with the students what they hoped to get from the students but also by taking into account how much the students would be able to work on the project. He thought that, because of that, they could define a fair set of deliveries where the focus was on not raising the expectations too high since he knew that the time was limited. Lastly, he felt that they managed to create a task where the students were given a chance to work on something which they would feel that they had made a contribution to.

Johan said that the actors should be equally engaged or invested in the project and even if it is a well-known company cooperating with students there should be mutual respect.

5.4.6 Changes for improved cooperation

Mats said that since this was the first time they had worked with students from the MATIX programme they could undoubtedly improve because he thinks that there is always room for improvements. He felt that in order to improve from what he saw in the cooperation JSP would need to open up a discussion with the programme's management to better understand what everyone expects. Also, he said that JSP could prepare better for next the cooperation in regards to what they themselves hope to get out of the cooperation. Johan felt that the questions that JSP asked the students was initially too broad, he thought that if they would do it again they should focus on more specific questions, which would make it easier for the students. He said that the group had to spend too much time to figure out how they could define the question better and narrow it down to something specific.

Johan thought that the MATIX coordinators could incorporate the project better into the whole programme. Moreover, he felt that if the project would have been incorporated in a more structured way into the programme the students would have been able to put more effort and time into their work, and they could probably have done even better than they managed to do. Again, Mats mentioned that the students had a lot of other things to do besides working with JSP and he expressed that he thought it to be the university's job to not put too much projects for the students to work on simultaneously. He also felt that the university could try to drive a discussion with the companies to be more involved because the companies need to understand how the programme's management would like the companies to commit themselves to the cooperation. Lastly, Mats thought that the university should be focusing on creating a broader range of connections with the industry.

5.5 Cooperation #5: Plantagon International AB and Buller

Information for this result section was gathered through interviews with Magnus Hjelmare from Plantagon and Micael from the Buller student group.

5.5.1 Task

The task that Plantagon wanted the students to work on was to figure out ways to bring in more members into their non-profit organization, which is a part of their concept called "Companization". The concept consists of two entities under the Plantagon name, where one is for profit and the other is non-profit. The entities are based on the same frameworks but they strive for separate goals while complementing each other. The students felt that the task was very open in the beginning but they thought that they managed to define the task better and contribute with results that Plantagon was satisfied with.

5.5.2 Motivations for engaging

Magnus said that Plantagon wanted to find a new way to work with their innovation process and they wanted a student perspective and ideas to help them find that new

way. They were also interested in attracting students as members to their non-profit organization so they felt that a student perspective on how to attract students would be a good idea. Micael from the Buller student group thought that Plantagon was motivated to engage in this cooperation because they were looking for a fresh perspective from students that have open minds and a less cynical way of thinking. He thought that the students could help the companies to see things from new perspectives by asking questions that have not been thought of before.

Micael said that it was motivating for the students that they were working with a real problem that Plantagon had and that their input might help the company to grow. The fact that it was a real case with all the possible obstacles included made it exciting to work with and that their results might be implemented later on made it even more motivating. It gave a different kind of motivation than if the students' results would only end up in a grade from the teacher. Micael also mentioned that the idea behind "Companization" was something that other companies might start implementing into their organizations and if that would happen it would be great to have been a part of its development. He felt that the best way to learn is to actually do it, and the worst thing about learning within a "safe" environment like the university is that you might not be getting the full experience. This cooperation was the perfect opportunity for the students to learn in an "unsafe" environment. Magnus thought that the students were motivated because they got the chance to gain more practical experience and he added that without this kind of cooperation the students' learning might get too theoretical.

5.5.3 Benefits of the cooperation

Magnus said that a benefit for Plantagon of this specific cooperation was an insight into how students today attack problems. He added that they were getting insight and knowledge from a perspective that they had not been able to see before. Furthermore, Magnus felt that a student's point of view is very important for Plantagon, especially for this task because they want more students into their organization. Moreover, the students are potential future employees, potential future members and in the long run potential future partners. Magnus said "this is a good way to take the temperature, so to speak, of the current student attitude towards what we do". He mentioned that by getting the students in, Plantagon was getting new perspectives from fresh minds on their objectives and challenges. Micael thought that Plantagon's major benefits from the cooperation was to get easy access to fresh perspectives and new ways of thinking about how things could be done. Also, he thought that some of the firms in The( )Space cooperation, including Plantagon, could benefit from networking with the students. He mentioned that some of the companies might have been looking for future employees and others for future customers.

Micael thought that the students benefitted from providing Plantagon with results, especially if the company would end up using the results since it would render a very rewarding feeling and also look good on the CV. Furthermore, he felt that it was a great experience of learning how to interact with companies and seeing that everything is not

always perfect, meaning that people have to be able to adapt quickly. Micael also mentioned that it was an opportunity to network with people who are very involved in dynamic firms. Magnus thought that it benefits students to be introduced to business in real life and that it prepares them for what is to come. He said "they cannot just stay in their bubbles, read books and discuss among themselves, they have to get out and swim in the open sea". Magnus further added that students can benefit from being challenged in what they do and in his opinion the university, in general, does not provide a concrete platform where students can make mistakes and be challenged. Conversely, he said that by going out and working with companies, like the MATIX programme offers its students, they get the chance to be challenged.

5.5.4 Obstacles in the cooperation

Magnus felt that maybe the biggest obstacle for them was the distance since Plantagon is located in Stockholm and the students were in Gothenburg so there were some communication errors. Even though he thought that Skype had reduced that problem he thought that meeting in person would probably have been better. Another obstacle was that they lacked an overview of the project's progress, which he thought might have been caused by the distance. He said that an easy way to avoid this would be to have some sort of halfway discussion or a meeting where they could go over what has been done and where they were heading. Micael said that he thought the overall obstacles in The( )Space cooperation were based on miscommunication and misunderstandings. He thought that perhaps Ola and Per oversold the project regarding how much the companies could expect from the cooperation or that they described the project a little bit bigger than it was. He said that this probably raised expectations and in some cases created some dissatisfaction. Micael thought that for some of the companies it seemed like they had some problems identifying and explaining the problem, which he speculated could be based on previously mentioned errors in communication or misunderstandings between actors.

Micael stated again that the biggest obstacle for the whole project was communication. In the beginning there was miscommunication between Ola, the companies and the MATIX coordinators and later also for the student groups in the communication with their companies. He felt that the communication errors between the student group and Plantagon, which were relatively minor, could have been avoided if they would have met with them and discussed together what it was that they were going to work on together. He said that these faults in communication created some misunderstandings and debates within the group and the time that it took could have been used more wisely. Also, Micael thought that the communication error between Ola, the companies and the MATIX coordinators seemed to have been slightly bigger because it felt like some of the companies were expecting full time employees and the students were told in the beginning that this project was a great opportunity and they could put as much effort as they wanted into it. He mentioned that the students felt very motivated and that they really wanted to do a good job but then it became very frustrating since the project

description was “do whatever you want, everything is possible”. Finally, they only had limited time to work on the project and to do other school work. So, Micael felt that the project, with all its potential, had too much time constraints. In his mind this was a limitation because some of the companies had high expectations of the students but they were not given a chance to meet those expectations. Micael found that the level of expectations should have been aligned in the beginning for all actors, taking into consideration the time available for everyone involved to work on the project. Magnus was not sure what the major obstacles were for the students.

5.5.5 Drivers for university-business cooperation

According to Magnus fruitful and long lasting cooperation between university and businesses is based on a couple of drivers being present:

- Expectations – everyone involved should know exactly what they can expect of each other, which is done by setting the expectations right from the beginning.
- Transparency – everyone involved has to be prepared to be honest and if they are not prepared to do so they should not be engaging in cooperation with others.
- Clear roadmap – everyone involved should be able to see where the cooperation is kicked off, a halfway check is needed to see if everyone is on track and then where it will end.
- Commitment – everyone involved has to be prepared to put down the time needed and be focused on the task at hand.

Micael talked about the importance of good representatives at both ends, that is, someone from the company and someone from the university that were engaged in the cooperation and willing to give their time for it. The actors involved need to have an open mind towards the cooperation and be willing to discuss all aspects of it.

5.5.6 Changes for improved cooperation

Magnus said that the changes needed from Plantagon in order to make future cooperation better would be that someone from the non-profit organization board would be involved in the interactions with the students as well, since the task is to bring more members into the non-profit organization. The students only had a contact at Plantagon who is not working specifically with the non-profit organization. Magnus wished for a broader involvement of employees since he felt that any idea or process benefits from more perspectives. Micael did not feel like Plantagon did anything wrong but he mentioned that they could maybe have been present on the first day when the other companies came and spoke with their groups, he believed that this could have maybe prevented some misunderstandings. Nonetheless, he also understood that it is more difficult for them to come and meet with the group since Plantagon has its headquarters in Stockholm while all the other companies involved in The( )Space are based in Gothenburg. In general he thought that companies should be willing to invest some minimum amount of time so that the students can do the best job possible. He also mentioned that the companies should be willing to let the students in, because it gives

an incentive for the students to do a better job, otherwise it would feel like their job is unappreciated.

Micael said that the university possibly could offer better backup for the students regarding where they can look if they run into problems. The university has to offer the students more time to work on projects like this one, a project which has all the potentialities but if it is narrowed so much down it is difficult to perform. In projects like this they also have to set the expectations right for the companies. Micael said that it was not clear how this project was incorporated in the courses but he felt like it was more of a "MATIX" thing, just a case within the whole programme. Magnus had limited role in the whole cooperation and therefore he did not communicate at all with the university so he could not pinpoint much that the university could improve. He did mention that it would have been good if the university would have arranged some kind of halfway check between the companies and the students. This could be a meeting or presentations where the students describe to the company where they are on the project, what has been challenging, what they need answers to and where they are heading. He thought that this could have avoided some misunderstanding within their cooperation with the students.

5.6 Cooperation #6: Zacco Sweden AB and XO

Information for this result section was gathered through interviews with Jonas Olofsson from Zacco, and John and Oscar from the XO student group.

5.6.1 Task

Jonas said that the task had been developing during the process of working with the students and the task's focus shifted two times. The initial idea was that the students would investigate Zacco with a focus on the Gothenburg region and how they could create growth through intellectual property (IP) both for Zacco and their clients. This was supposed to be focused on the legal departments at Zacco who work with processes, license agreements, designs and trademarks. The students met with some employees from those departments. This was the first focus that Zacco hoped to be able to work with the students on but the students on the other hand came back with other ideas for creating growth. Their idea was to cooperate with another student group who was working with IBM. Zacco felt that the goal of the cooperation with the IBM group was vague and that the gain was not clear. Zacco's approach to this was that they could possibly gain from the cooperation if the focus was set on patent searches. This changed the project's focus for the second time where the students were tasked to study how Zacco could grow within the field of IP with the use of the Watson computer, developed by IBM. The students felt that the task was intangible and fairly broad in the beginning but through discussion with Jonas and brainstorming they managed to narrow it down to a more focused task and they began cooperating with the Fans group who were working with IBM.

5.6.2 Motivations for engaging

Jonas mentioned that he was immediately interested in participating in The( )Space project when it was introduced to him because in his eyes Zacco is a firm that is competing in an industry that has been going through changes and Zacco would need to be on top of these changes in order to grow and be competitive on the market. Jonas hoped that by including the MATIX students, more people in the organization would be forced to start thinking in new ways to become better experts. He said that the need for a changed mindset at Zacco motivated him to participate because he felt that students could help them achieve that. He also added that Zacco wanted to give back to society and one way of supporting the society is by cooperating with the university and the university's students. John and Oscar from the XO student group thought that Zacco was motivated to cooperate with students because they would be getting a different point of view, which in turn could open up their minds to new ideas. By opening up the mindset of the people at the company they might find out new ways to think about things or just realize how they could change for the better. Oscar added that Zacco might have been motivated to enter because they knew that they were getting students that have some experience working with firms in their previous cooperation with the partner companies.

John and Oscar mentioned that the students thought it was exciting to do a real life school project with companies. They were motivated because they got the chance to use the knowledge they had acquired in the programme and actually apply it at the company. They said that the students' motivation came from being able to learn new things by engaging in cooperation with dynamic firms where they can apply their learning and develop it further in order to have it as a tool in the toolbox for them to use later on. Another motivation they mentioned was the required working experience firms look for when they hire people, and a type of cooperation like this one would be a great addition to the CV. Jonas from Zacco thought that the motivation for the students was the chance to work on a real life case instead of theoretical cases and the opportunity to gain practical experience.

5.6.3 Benefits of the cooperation

Jonas mentioned the new fresh mindset that the students bring in when they sit down with Zacco employees and ask questions that they at Zacco have not been thinking of before as benefits for Zacco. He thought that this benefitted Zacco because the employees involved got new creative ideas and were forced to think in new ways. John and Oscar felt that the main benefit for Zacco was to establish relations because they get an opportunity to connect and work with other companies in The( )Space cooperation.

John's and Oscar's idea of benefits for the students was to get a connection with someone inside the firm and chance to build up a relationship and hopefully a future employment. They said that it was a chance to get a broader perspective of firms in the society and how they work. Again, they mention the fact that they got to use their knowledge while it was fresh and apply it in a business setting, which they felt made the

knowledge stick better with them. Jonas thought that the students benefitted from the cooperation because it was an opportunity for them to come to a dynamic firm and see how they work in practice. He said that the students learn more by working on real life projects and therefore their skills will be better developed for taking on similar projects later.

5.6.4 Obstacles in the cooperation

Jonas talked about obstacles internally, such as experienced employees lacking belief in students coming in and solving problems that they have not been able to solve. He also mentioned that it had been an obstacle for him to promote the project in-house so that the students got access to the employees. It was also difficult making employees understand that the students were not supposed to come in with revolutionizing ideas but rather bring in new perspectives and ideas that could be developed further in-house. Jonas said that from the beginning the project was very fluffy and the preparation time at the firm was basically trying to figure out what the project was and how they could benefit from it. He felt that they at Zacco were kind of confused but interested in the project as it was introduced to them by Ola and Per. John and Oscar said that it seemed like in some cases that the companies assumed that the students had certain kind of knowledge in a little bit of a negative sense, and that the companies' thinking was in some sense rigid regarding in what ways things should be done. Oscar pointed out that the companies seemed to be looking for solutions to problems rather than opportunities to learn new things. They mentioned that the companies, as well as for the students, had to deal with time limitations. Furthermore, they said that everyone was busy and the time that was needed for the companies and students to reach a focus was an obstacle to get start working on the project.

John and Oscar said that overall the obstacles were based on communication issues between everyone, especially in the beginning of the project. They said that it was very unclear what was expected, both from the university as well as from the companies. One of the major obstacles for the XO student group was the lack of boundaries that the project offered them. The group was struggling a bit and there were some arguments because there was no limit to ambitions. They felt that it was unclear especially because they did not see how it was connected to the courses. John and Oscar mentioned that the student groups in the programme are usually constructed with people with different backgrounds and ideas to complement each other when they are working on cases. They felt that a cross-functional group like that works well when the task's structure is clear. In this case the task was very unclear and the whole thing felt fuzzy, which created clashes within the cross-functional groups because people wanted to approach the task in very different ways. Some students even felt that they did not get any framework to work within at all. Conclusively, they felt that the project was squeezed in as a great idea that had little or no planning. Jonas said that he had not noticed any major obstacles for the students and overall he did not feel like the students were struggling with the project.

5.6.5 Drivers for university-business cooperation

When asked about key drivers of fruitful cooperation Jonas mentioned that acceptance from all partners is crucial. He felt that the university needs to allow its students to go and work for companies, but even more important is that the companies and all involved from the companies accept the project because otherwise the ideas from the students will just hit a wall and lead to nothing.

John and Oscar mentioned a couple of drivers that they felt are important for fruitful and long lasting cooperation:

- Active representatives on both sides of the cooperation with a good communication flow between actors.
- Clear task and an understanding of what the cooperation is about.
- There has to be a win-win situation because the companies do not want to waste time on a useless cooperation and the university could lose reputation if the work that their students carry out is not up to standard. The university has to be able to present good students that deliver good results.
- For a win-win situation to be possible the expectations have to be set right from the start, the university has to explain what the companies can expect of the students so that the companies can design tasks that are feasible for the students to work on within given time.

5.6.6 Changes for improved cooperation

Jonas said that there is always room for improvements for firms and bringing in the students was a great way to exploit ideas of improvements. From his own perspective he felt that he could have introduced the project better in-house in order to involve even more people. He mentioned that from the beginning the project's description was vague and that most of the preparation time at the firm was spent trying to figure out what the project was and how they could benefit from it. Jonas mentioned that if they would have had a better idea from the beginning they could have formulated their tasks and questions for the students better and they would not have had to change focus so much in the beginning. John and Oscar think that changes that the companies could do to improve the cooperation would be to communicate their expectations better from the beginning, e.g. with a more specific problem statement. They also mentioned that the companies should trust the students more because the students want to be able to discuss things with the companies at a higher level.

John and Oscar then said that the university could be more transparent, especially when the project is sort of an experiment. They felt that the university could have told the students earlier in the process that they were not sure what they were expecting from the project. Furthermore, they said that an open discussion about the project before engaging in it, and in general better communication and clarification together with the students could have helped. They thought that maybe the university was scared that if they would have said that the project was an experiment without a clear outcome the students would have lost interest. However, they believed that the class would have no

problem with it and maybe even it would have given them an incentive to be even more creative. Jonas mentioned the importance of defining the level of cooperation from the beginning and in that sense he added that he felt that the level had been defined quite well from both sides.

5.7 MATIX programme cooperation with The( )Space companies

Information for this result section was gathered through interviews with Robert Orbelin and Johanna Fransson from the MATIX programme, and compiled information from the interviews with the six companies involved in The( )Space, as well as compiled information from the interviews with the six student groups.

5.7.1 Motivations for engaging

Johanna mentioned that the MATIX programme is always looking for opportunities to be able to offer the students case studies from different angles that would give the students new perspectives, ideas and an opportunity to be creative. Robert said that cooperation with the business society is one of the things that MATIX stands for, because they want the students to experience on the border of reality while academically deepening their knowledge. They felt that students benefit from developing their theoretical knowledge within a practical experience setting, where they learn by doing in a real context of both academic and scientific experiments. Therefore, they welcome opportunities to engage in these types of cooperation with open arms. Robert said that the motivation was to be able to offer students the opportunity to learn and to use this learning in a real life setting with dynamic firms.

The students felt like the MATIX programme saw the cooperation as a great opportunity that aligned with their business model and a chance to further the programme's cause of getting students out to learn how to apply their knowledge and work together with companies in a real business setting. The students also thought that the MATIX programme saw the cooperation as a branding opportunity and a chance to build up reputation for attracting students. Lastly, the students talked about how they thought that the programme wanted to offer the students challenging cases in a real life setting that would stimulate and encourage the students, as well as providing them with an opportunity to gain practical experience and a platform to develop their skills.

The representatives from the companies involved in The( )Space thought that the motivation for the MATIX programme to engage in the cooperation was that they saw it as a chance to build up the programme's reputation. They mentioned that it might be motivating for the programme to establish relations with bigger companies in the society. Furthermore, the representatives said that they thought that the programme was looking for opportunities to offer the students the chance to work on real life cases instead of theoretical cases. As well as, offering the students an environment where they could gain practical experience. Lastly, they hoped that the university saw it as a chance for the students to network and build up relations with people in the business society.

Robert said that he had understood it as if the companies needed the kind of perspective that the MATIX students have, both from a business administration perspective as well as the new generation's perspective. He thought that it was also interesting for the companies to get 4-5 students with a new mindset in at the same time. Johanna thought that the companies' aim was to get creative ideas and try something new that is different from what they usually do. She said that there is a lot of theoretical knowledge in the students about the latest innovations and research that is incorporated in the education and she thought that the companies were motivated to access that knowledge.

Johanna mentioned that she thought that it motivated the students to be involved with companies that listen to what they have to offer and are planning to use or implement what the students suggest. She added that she also thought it motivated the students to be given responsibility and a chance to be creative in a business environment.

5.7.2 Benefits of the cooperation

The students felt like the MATIX programme had benefitted from the cooperation by establishing relations with big businesses in Sweden, which they mentioned offers the programme the possibility of future cooperation, cases or other ways of interactions between the university and businesses. Furthermore, the courses and cases could be improved in the future by making use of the experience gathered during the cooperation. Also, they thought that these established relations will prove to be a marketing tool for the programme and an opportunity for them to build the MATIX reputation, which in turn would attract more and better students, as well as better teachers. The students added that cooperating with exciting firms motivates students to do better and they thought that the MATIX programme benefits from motivated and satisfied students.

The representatives from the companies said that they thought that the MATIX programme had benefitted from improving relationships with local businesses because of the networking possibilities and opportunities to involve companies more into the teaching in the future. They also mentioned that the cooperation improved the reputation of the MATIX brand and that would increase the interest of the programme from future students. Moreover, they said that since the programme is also competing on a competitive market for students the cooperation with dynamic businesses should give them a competitive advantage. Some of the representatives from the companies were not able to pinpoint any major benefits for the MATIX programme.

Robert from MATIX said that the companies had benefitted from getting new "thinking outside the box" perspective on things. He added that this brings in a new way of thinking for the companies and maybe they could get something that they would not have engaged in without the students coming in and doing it with them. Johanna thought that the companies benefitted from getting the students' impulse and ideas. She further said that the students' work could lift companies' spirit as well as affect the culture. Lastly, she mentioned that the companies benefitted from getting to know the students as possible future employees.

According to Johanna the students benefitted from getting experience from working with multinational enterprises. She added that the students also benefitted from getting in touch with people at the companies in order to build up their network. Robert hoped that the students acquired knowledge on how to work with innovation platform ideas that are not on the market yet or even developed. He also saw a benefit for the students where they would learn something new that they could apply for their individual cooperation with the partner companies and vice versa for The( )Space cooperation, some sort of exchange of knowledge.

5.7.3 Obstacles in cooperation

Johanna said that the main obstacles were related to the extent of the project, she felt that it was challenging because the university wants the students to be creative but some students get limited if it is also too big. Robert said that he was satisfied that they carried out the project because he feels that they learned a lot from it, even though it was a little bit "ad hoc" and planning was very limited. He mentioned that the main obstacle had been to make this project viable for all the actors involved while at the same time running it parallel to the courses. Robert added that the size of the project made it particularly difficult to run parallel to the courses.

The students thought that the greatest obstacle for the MATIX programme was that they had given Ola full responsibility of the project. They believed that Ola sold the project to the companies bigger than it was, which created high expectations from companies that the students then had to steer in a direction possible for them. The students said that this created some tension and dissatisfaction, which they thought was probably difficult for the programme to deal with. Furthermore, they thought that this was caused by miscommunication and probably misunderstandings between Ola and the MATIX programme, as well as between Ola and The( )Space companies. Another obstacle for the MATIX programme that the students mentioned was that it seemed that they had troubles fitting the project into the schedule because of the project's size. Lastly, one group mentioned that even though the MATIX is focusing on getting the students as much practical experience as they can get they feel like the university still is too focused on academic values, which they thought can create problems in projects like these where the structure is very open and it is unclear what courses the project belongs to.

There were no clear indications from the interviews with the representatives from the companies about what they thought were the major obstacles for the MATIX programme.

Johanna said that there seemed to have been some miscommunication about the project definition and some companies thought the extent was much bigger. Robert said that some companies were expecting more time to work with the students but that they had to adapt to what the students were able to do. He thought that this made it difficult for some of the companies to find a focus on what to work on with the students.

Obstacles for the students according to Johanna were to deal with the expectations from the companies. Robert thought that the fact that the students had to change mindset could have been an obstacle for them. He said that taking responsibility for their work was nothing new for the students but in this project they had to really cooperate within a team. He felt that this was maybe more of a challenge, but a challenge that the students should learn from and be able to use later. He mentioned that the students had to overcome an obstacle because the platform they were supposed to work on was really open and they really had to define it themselves, which is something that they were not used to. Both Robert and Johanna mentioned that time was an obstacle for the students, whereas they had to prioritize their work and attend to their other obligations as well.

5.7.4 Drivers for university-business cooperation

Robert felt that the connection between the university's representatives and the companies has to be really good. This connection is based on having a clear plan for what the cooperation is about and what timeframe they are dealing with, and these factors have to be transparent in Robert's mind. He talked about how the courses in the programme should be built up around cases like these and in turn the cases are used as a tool for deepening the knowledge. In his mind the theory used in the courses needs to be relevant for the real cases and the cooperation, otherwise the cases that are running parallel to the courses are just "extra work" for the students. Robert mentioned again the benefits for each actor and emphasized how important it is for the actors to be able to see the win-win situation from the cooperation. Johanna said that the most important driver for fruitful and long lasting cooperation is balancing expectations, meaning that all parties are able to talk it through beforehand. She added that if all parties are expecting the same things, there is a lower chance of clashes.

5.7.5 Changes for improved cooperation

Robert felt that they have learned a lot from this project. He mentioned that the project was too "ad hoc" for its size and for the next cooperation or similar projects they would need to realize from the beginning how the case can have a relationship with a specific course or courses. Furthermore, he felt that he should have a bigger role in communications with the companies in the next cooperation. Johanna said that they would need to plan better and balance expectations better with the other actors involved in the cooperation.

Robert thought that it could be better if the companies would try to establish communication directly with the MATIX coordinators, which he thought could have sidestepped some misunderstandings and miscommunication. Johanna said that the companies have to be aware of how much they can push the students.

5.8 The( )Space initiators' reflections on the cooperation

Information for this result section was gathered through an interview with Ola Ekman and Per Östling who are the initiators of The( )Space concept.

5.8.1 Motivations for engaging

Ola mentioned that some of the companies had been in contact with him and Per asking how they could connect to the university. He said that the companies were interested in connecting with the university but that they had limited time to do it. The companies had told him that they wanted to show that they are in good connection with universities and that they have a creative relationship with the students. Another motivation that Ola mentioned was that some of the companies felt like they have not been growing and felt like they had to try something new. He said that since they might not have big resources to spend on trying out new things, they saw that this could be a test to see if working with the university and students could help them to grow. Per said that he had heard from some of the companies that they were looking for new perspectives to come in because the background of employees at the companies was too homogeneous. Lastly, Ola said that some of the companies saw it as a chance to widen their network.

Ola thought that the motivation for engaging in the cooperation for the MATIX programme was that they were busy and that they do not have enough time to look for cases for the students. He thought that if he and Per would not have come up with this project and offered it to the MATIX programme they would have had to go with something else, which maybe would not even be a real business case. Ola said that those cases are of course of value for the students but the students might not feel as valuable or useful as they would feel with real life business cases like in The( )Space cooperation.

Ola thought that from the beginning the students' driving force derived from doing something new and being involved in an interesting project. That same driving force was then mixed with the frustration of having too little time and too much pressure on them. Ola felt that at times the students were angry with him and Per as well as with Robert from the MATIX administration. He said that they got confused because of the possibilities with the project in combination with the lack of time. Per said that he thought that the motivation for students was to get to know these exciting companies and network for possible future employment reasons. Per's idea was that the students would join the project, do a good job and add it to their CV.

Ola said that he felt that he had partly failed in what he thought they were going to do but he said that he had hoped for a closer relation to the MATIX students and to be able to work more with them.

5.8.2 Benefits of the cooperation

Ola said that the companies benefitted from the students coming up with clever questions and ideas that the companies had not thought of before. He thought that the

students brought in “out of the box” thinking that the companies benefitted from. Furthermore, he thought that the companies benefit from the possibility to network, both to get closer to the university and show that connection, but also to network with the students to open up for recruiting possibilities. Some of the companies also saw the benefits of having young people around because of the energy young people bring. Ola added that some of the companies were really satisfied with what the students had contributed and some ideas have entered development phase at the companies. Some of the companies have decided to continue to the next step in The( )Space process, which means more involvement, more participation and more networking.

Ola said that the major benefits for the MATIX programme were mainly because they were offered a ready real life business case, something that they might not have had the possibility to offer otherwise. Another advantage that Ola mentioned was that if the project was viewed as a success and the students were happy, then the MATIX programme would be happy because they want to make sure that their students are satisfied with their studies.

Ola said that first of all the students got to have fun and work on interesting and challenging projects with exciting companies, which in turn developed them. Ola added that the students benefit from working with the companies because they get to extend their network and connect with interesting people.

5.8.3 Obstacles in cooperation

Ola said that the major obstacle for the companies was time constraints since the key people in this area are often very busy people. Ola said that they need the most engaged people to be available because the logic is that it is very hard to work with someone who is not engaged. He added that he felt that many of the people that they were working with in the project were very engaged, but that they were more engaged in their own business so he felt that it was hard to make them create time for the project. Ola thought that it might have been hard for some of those who were interested in getting involved to try to explain it at the company why they should get involved. He said that the fact that they might not have understood the idea completely made it even more difficult for them to explain and get people on board.

Ola said that the problem could be that the project was too practical for the MATIX programme. Per and he pushed for practical solutions, but the programme needs some academic results as well. Ola said that the programme had certain problems with him pushing the students and he said that there was some frustration between the MATIX programme and him. He stated “It might have been that I said something and then Robert said something else, but we learned from it”. Ola said that it was all based on miscommunication and that he could not blame Robert or the others. He added that they would just have to learn from it and do better next time.

The main obstacle for the students was time according to Ola, because the students had many other things to do. He felt that the students also had some problems with

miscommunication with the school, the companies and him and Per, resulting in some misunderstandings and frustration coming up.

Per said that one of the obstacles of working together with academia is as with every other school in Sweden, the teachers or the managers of the education programme have some people at the top looking down at them, expecting them to deliver something very specific. The people at the top are not looking at the results but rather looking at the input. The teachers are measured by how much they are able to yap about, but they are not measured from what their students actually get.

6. Empirical findings II

The empirical findings in this chapter are presented in a manner that shows the cooperation between the partner companies and the MATIX students by grouping together their perceptions of their cooperation with the students.

6.1 MATIX programme Cooperation with the partner companies

Information for this result section was gathered through interview with Robert Orbelin from the MATIX programme, and compiled information from the interviews with the four partner companies currently cooperating with the MATIX students. The interviewees from the four partner companies were: Björn Lekander from Permanova Lasersystem AB, Emelie Hallberg from Itero Business Solutions, Kent Rundgren from Chalmers Industriteknik and Per Bergland from Meltwater AB.

6.1.1 Motivations for engaging

Robert said that there is a deep purpose for MATIX that highlights the importance of learning from experience. He stated that when people learn they have to engage in activities that will get them to a new or a deeper knowledge about the thing they are learning about. He said that normally this is called to study and when people study they will arrive to a significance on the thing being studied. However, Robert added that if people have a thirst to thoroughly understand something they will have to dig deeper than just to study about it. In order to really learn something people need to read about it, experiment with it, do case studies, put the subject in real action and lastly reflect upon the results and personal performance. The MATIX is all about offering students the opportunity to learn under those circumstances where they can take the advantage and learn from both deepening their studies from school and experiencing the practical side at the same time. The MATIX programme needed the partner companies to be able to offer students this and therefore they were motivated to engage in cooperation with the companies in the society.

The representatives from the partner companies thought that the MATIX programme was motivated to engage in cooperation with them to be able to offer the students a variety of companies working in different industries and facing different challenges. They mentioned that the MATIX programme seemed to be looking for real world problems in an open and supportive environment that they could offer their students to attack while applying their academic knowledge from school. One of the representatives, who is a former MATIX student, mentioned that the MATIX programme was probably also interested in getting to work with a company where a former student would be the contact person because of the existing knowledge and experience of what the student would be going through.

Motivations for the partner companies to engage in the cooperation were predominantly that the companies were in a growing phase and they wanted to learn more how they could optimize their operations. They mentioned that they felt it was interesting to get an input on their business from a new perspective and some of the

partner companies were very technically oriented so they felt that they needed more knowledge coming in from a business administration perspective. For some of the partner companies this was the first time that they had been in cooperation with MATIX and they saw it as an exciting opportunity to learn something new and improve. Some of the companies had been involved before and their motivations were more specific regarding what they knew they could get out of the cooperation, e.g. academic knowledge, models and tools that they wanted to implement.

Robert from the MATIX administration said that organizations often get stuck in their own perspective, which could obstruct their growth. He mentioned that the partner companies were interested in getting MATIX students who are trained to handle information, doing analyzes and presenting constructive data. Robert added that companies that take advantage of letting students into their businesses are often hoping to broaden their perspectives in a way that makes them think and reflect upon their situation.

6.1.2 Benefits of the cooperation

Robert said that the MATIX programme mainly benefit from the advancements of their students by working with the partner companies. He mentioned that the students get the possibility to develop a real understanding of what they are studying. Robert felt that the students also get to know their abilities better, which can improve their self-belief and strengthen their determination to grow. He also said that the students benefit from being able to apply their knowledge at a real business because they learn by doing, something which he felt could help the students to better remember what they have learned.

The partner company representatives said that the MATIX programme benefits from the cooperation because they are broadening their network and building up a relationship with the industry in the western part of Sweden. They mentioned that this could help building up the MATIX brand and improve the programme's reputation, which could then attract more and better students and companies in the future.

The partner company representatives felt that the students benefit from the cooperation because they get to learn in a business environment where they gain practical experience, improve and broaden their skillset and get much needed references for when they start working after graduation. They also mentioned that the cooperation with the companies could help the students realize what they want to do after graduation.

The representatives from the partner companies mainly talked about that they benefitted from getting a new perspective, new mindset and fresh ideas in that could really help them look at their business from a new angle. Furthermore, they said that the students were asking questions that helped them to reflect on their business. They added that even though the questions might sound simple, they are often about something that the companies have not thought of before, which can be very beneficial

for them. The representatives mentioned the benefits of the knowledge transfer from the university to the companies since the students brought in a lot of academic knowledge, especially from business administration studies, which some of the more technical companies felt that they lacked. Lastly, they mentioned that in some sense it was a cheap way of bringing in a management consultant.

Robert said that if the partner companies are clever enough to really listen to what the students have to offer them, the companies have a great opportunity to create an open source channel to transform their own perspectives. He mentioned that during the year the students were able to help the companies with practical challenges regarding, e.g. marketing, financial, strategic and other business administration challenges that the companies face. He thought that the companies also benefit from the knowledge exchange.

6.1.3 Obstacles in cooperation

Robert said that both for them at the programme and the students there is always a scale of what he called an ”imperfection factor” for dealing with real companies. He said that the students meet situations that are unique and not really part of any learning objectives in the courses. This can make their time much more complex and difficult than within the universities’ organized walls. Robert added that this however is what happens in real life, and people will have to deal with something that is out of their perimeter and the only thing to do is to try to learn from it.

The representatives from the partner companies mentioned that the major obstacles for the students had been time related, either because they were busy with work from school or that the people at the company had limited time to meet with them. Otherwise the representatives were rather satisfied with the work that the students had done and some said that there had been no or very limited obstacles in the cooperation. The representatives said that they mainly had contact with Robert from MATIX in the beginning and then there had not been so much contact. Therefore they did not think that the MATIX programme had to overcome any major obstacles in the cooperation.

Overall the partner companies were quite satisfied. They mentioned that it was difficult to imagine how much they could expect and some were unsure of how much they could push the student. One mentioned that there is always this clash between academia and businesses, where the academic side wants the theoretical approach and references while the companies want more concrete results and do not give too much for the theories and references behind them. They also mentioned that lack of time was an issue, which sometimes made it difficult for them to help their students.

Robert thought that the major obstacles for the partner companies were that often they cannot really know what could come out of the cooperation and he added that they usually had a rough idea but for most of them it was a learning process. Robert mentioned that if they were open enough and ready to try new things they might not face any obstacles in the cooperation. Lastly, he said that there might be struggles but it

could be struggles that could turn out very beneficial for the companies and help them with their growth.

6.1.4 Drivers for university-business cooperation

When asked what the key drivers were for fruitful and long lasting university-business cooperation the representatives from the partner companies had a couple of ideas.

- The cooperation is based on a win-win ideology so that everyone involved benefits.
- Clear vision or a roadmap of the cooperation is important so that it is easy to see the progress and what steps have to be taken next.
- Good communication between all actors through the whole process.
- Build up trust because that makes it easier to rely on each other so that things get done as expected.
- That actors are open minded when it comes to listening to the others and understanding their needs.

6.1.5 Changes for improved cooperation

The partner company representatives said that it had been a learning curve for them to understand how much they could expect and how much they could push the student. They felt that they could have been more prepared and better structured when it came to creating and assigning the tasks to the student. They said that this could be done by investing more resources, e.g. time and people, when engaging in the cooperation with the student. The representative for the partner company that had been a partner company before said that the cooperation gets better every year because they gain the experience of working with previous students and try to use it to improve the cooperation with the next one.

The company representatives mentioned that there is always room for improvements but that the improvements needed from the university were minor. They thought that maybe they could do better in making it clear what the partner companies could expect from the cooperation, e.g. describing different parts of the education better, and how the student would be able to use the courses to help the company. They said that this could be done by providing them with some success cases from previous years. Furthermore, they added that those success cases could also be dangerous since it could narrow the expectations that they had for the student, or they would focus too much on what has been done in previous years. Lastly, they mentioned that the MATIX coordinator could be more proactive with contacting the partner companies from time to time to make sure that they feel like their needs are being met, e.g. to see if the companies were interested in continuing as a partner company or if they were interested in cooperating in some other ways in the future.

7. Analysis

In order to enable a more general analysis of the different actors' motivations, benefits, obstacles, drivers and changes for the cooperation, the respondents' answers were coded and sorted into categories according to our interpretation, and to some extent, in conjunction with the literature. In the tables of the following sections it is possible to see how the actors involved in this study perceived the factors that they were asked about during the interviews. To clarify which representative said what in the tables they were given codenames where: C# stands for The( )Space companies' representatives, S# stands for the MATIX student groups' representatives, U# stands for the MATIX coordinators' representatives and lastly X# stands for The( )Space initiators. The most relevant information from each table will be discussed and connected to theory where appropriate.

From the definitions of the eight types of UBC (Davey et al, 2011), it can be derived that The( )Space cooperation has been functioning as a collaboration in R&D, which is also the most common type. Although, if we dig deeper into the cooperation it is clear to see that it is not as easy as pinning down a list of only eight possible types of UBC. To our knowing, the cooperation is unique in its nature, especially considering the overall goal of The( )Space concept. The initiators of The( )Space cooperation, Ola Ekman and Per Östling, have during the course of the cooperation been acting as the intermediaries between the university and companies. Their core activities were in fact very similar to those of the intermediaries in the Faraday Partnerships in the UK, identified in Lambert's (2003) review. Whereas Ola and Per have, among other duties, been exchanging information between university and companies, and organizing the dissemination event at the end of the project.

There are some similarities to the cooperation that Afacan (2013) studied, both in the duration of the projects and their connection to students. The biggest difference was found in that the MATIX programme had not integrated the cooperation very thoroughly into specific courses, which was the case for the Turkish design course. Also, the fact that the MATIX students have been working in teams instead of individually must be considered a valid difference.

There are obvious links to existing literature when comparing the two types of cooperation. The MATIX cooperation with the partner companies could easily be deduced to be UBC through the mobility of students (Davey et al., 2011), but in contrast to sponsored students the MATIX students did not get paid a salary (Lambert, 2003). Another difference in structure between The( )Space cooperation and the one with the partner companies was that in the latter the practical experience of the students was well integrated into the curriculum and teaching.

7.1 Motivations for engaging

Not surprisingly, a major factor for most of the actors to engage in The( )Space cooperation was their personal contact to either one or both of the initiators of The( )Space, Ola Ekman and Per Östling. They both have personal experience of

working with industry and university giving them an understanding of both organizational environments, which is a driving influence for initiating UBC according to Plewa & Quester (2007; 2008). Also, as suggested in existing literature, the personal contact they already had with many of the representatives from The( )Space companies and the MATIX administration could have worked as a facilitating factor for initiating collaboration (Darabi & Clark, 2012).

7.1.1 Motivations for companies

Our results indicate that the most important motivations for The( )Space companies for engaging in the cooperation can be divided into two major groups. On the one hand, the companies were hoping to get something new in through the cooperation as input. On the other hand, the companies were hoping to get something out of the cooperation as output. In addition, there were some other motivating factors as well that got them to engage in the cooperation.

In table 2 it is possible to see what all the actors perceived regarding The( )Space companies' motivations for engaging. All the companies mentioned problems or projects that they wanted to investigate further and most of them wanted to do so by making use of students' creative ideas and perspectives. In general there appeared to be a wish to work with the university, and especially the students to tap into their pool of knowledge, creativity and energy. Existing research indicates that companies are interested in the talent and fresh minds at universities (e.g. Lambert, 2003; Plewa et al., 2005). For the partner companies the motivations for engaging in the cooperation were on similar notes, most of them had some specific problems or tasks that they needed help with. Furthermore, they wanted ideas and new perspectives from the students and, in contrast to The( )Space companies, their focus was much more that they were after the students' academic background and business administration knowledge, tools and theories. As pointed out as an important motivation in existing literature, this might be because some of the partner companies are very technically oriented and seem to lack that kind of perspective on their operations (Lambert, 2003).

It is commonly believed that industry is driven by commercial interests in UBC (e.g. Plewa et al., 2005), something which our study also supports. Most of the ten companies involved in our study were also motivated to some extent out of commercial interests to engage in the cooperation, whereas they wanted to get something viable and useful from the students. Although, the commercial interest for the partner companies appeared to be greater than for The( )Space companies which could be justified by arguing that they are SMEs with smaller budgets who are investing more time and resources into their cooperation. With this in mind, we would like to point out that even though there were commercial driving forces, they were not as strongly indicated as could be expected, especially for The( )Space companies that seemed quite open to trial and error.

It was interesting that the students perceived that The( )Space companies sought their outside perspective, which in fact was one of the main motivations for the companies to engage. This indicates that the students understand that their insight and skills can shed

a new light on businesses which can be valuable for the companies. This addresses that the students have a good perception of what companies want to get out of working with students, a perspective which is limited in previous research.

Table 2: Categories for the respondents' perception of what motivated the companies to engaged in the project.

Motivations for companies to engage		
Category	**Description**	**Respondents**
Perspectives	The students can provide new perspectives on problems because of their age group and backgrounds	C#1, C#2, C#3, C#4, C#5 U#2 S#2, S#4, S#5, S#6
Ideas	Students can provide fresh and creative ideas for the company to build on	C#1, C#2, C#5 U#1 S#6
Academic knowledge	Students can provide the company with fresh academic knowledge	U#1 S#1
Team of students	The project offers a team of students instead of one single mind	U#2
Establish relations	A hope to meet new contacts as future customers, partners or future employees	C#3, C#4 S#3 X#1
Contribute to society	Be socially responsible by working with students and universities	C#3, C#4 S#1
Change culture/mindset	Can get inspiration and ideas from the students that change mindset	C#6 S#6
Investigate problems	The wish to start an investigation of a larger problem and get student input	C#1, C#2, C#3, C#4, C#5, C#6 X#1
Increase expertise	The project can increase expertise at the company	C#6
Branding	It is a branding opportunity for the company	X#1
Interesting opportunity	The opportunity seemed exciting or interesting	C#1, C#2, C#4, C#5, C#6 X#1
Work with students	Interesting to work with students because of their energy, creativity and fresh minds	C#1, C#2, C#4 U#1 S#5, S#6 X#1
Work with university	Work with universities to share resources, be closer to students, as part of strategic goal and to show a good connection	C#2, C#3, C#4 X#1
Low cost opportunity	The project is a low cost investment to get student input	S#2
	C#: 31, U#: 5, S#: 12, X#: 6	Number of unique answers: 54
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#		

A couple of the companies were also motivated to get engaged in order to give back to society by working with the university and there are claims, in previous research, that being involved in UBC and such knowledge transfer activities in fact can contribute to economic, social and innovative development in society (Lambert, 2003; Darabi & Clark, 2012). This motivation to engage in the cooperation was the only reason that was not inherently for the companies' own benefit.

Even though the cost of engaging was relatively low, none of The( )Space companies mentioned that as a motivation, despite it being found as a motivational factor in Lambert's (2003) review. The reasons for the companies not mentioning low cost as a motivation could either be that it was not a factor, or that they just did not want to share that with us. Although, one student group perceived low cost to be a motivation for the companies to engage.

7.1.2 Motivations for the university

In this section the motivations for the MATIX programme and the students have been grouped together since together they represent the university (see table 3). All the student groups stated that it was a motivation for them to be able to work with interesting companies in a dynamic environment. Furthermore, they were also motivated by the possibility of being able to show their work experience with these interesting firms in their CV and therefore increase their employability.

Table 3: Categories for the respondents' perception of what motivated the university and students to engage in the project.

Motivations for university and students to engage			
	Category	**Description**	**Respondents**
For students	Work with interesting companies	Interesting and fun to work with dynamic, global and technological firms	U#2 S#1, S#2, S#3, S#4, S#5, S#6 C#3 X#1
	Apply knowledge on real life cases	Exciting and instructive for the students to work on real life cases where they can apply their knowledge	U#1, U#2 S#3, S#4, S#5, S#6 C#6 X#1
	Practical experience	The students can get an insight to how a real firm works and its procedures	U#2 S#5 C#1, C#5, C#6
	Establish relations	The students can network and get in contact with future employers or partners	S#2 C#4 X#1
	Work experience (CV)	The project can give the students a stronger CV that shows work experience	S#4, S#6 X#1
	Personal development	The students can grow and develop	U#1 C#1
For MATIX	Branding	The programme can use the collaboration to strengthen reputation and attract students	S#1, S#2, S#6 C#1, C#3
	Suitable project	The project fits well with the programmes business model and overall goal	S#3, S#4 C#2, C#5
	Work with business society	It is part of the third stream assignment to work with the business society and this was a concrete way of doing so	U#2 C#5
		U#: 6, S#: 19, C#: 12, X#: 4	Number of unique answers: 41
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#			

For students to be working with industry is one of the strongest forms of knowledge transfer, which is a central motivation for collaboration for both university and industry (Bekkers & Bodas Freitas, 2008; Plewa et al., 2005). Most of the student representatives expressed that it motivated them to be able to apply the knowledge they got in school on a real life case, which would be a channel of knowledge transfer. The two factors that motivated the students the most were interestingly also what the MATIX coordinators mentioned as motivating factors for the programme. This implies that the MATIX coordinators have a good idea of what can motivate their students to do better and that they are in fact offering the students what they want. The partner company representatives also perceived the chance to offer students a chance to apply their knowledge at an interesting firm, to be a motivation for the MATIX programme for engaging in cooperation with them. In Afacan's (2013) study of a similar type of cooperation she found that students' ability to apply knowledge on real life cases increased and that they deepened their knowledge of the subject at hand.

The motivations for engaging in the cooperation according to the MATIX coordinators were more focused on being able to offer the students something rather than the MATIX programme getting something out of it. They did mention that since cooperation with businesses in the society is the core idea of MATIX, they were motivated to further that cause, especially since it is with different firms than they are used to cooperate with. We can also further speculate that this is what their students have signed up for in the first place and it therefore is the programme administrators' responsibility to honor that deal. It is not surprising since university representatives in Sweden and EU in general put the students' needs and benefits from UBC to be of higher importance than their own (Davey et al., 2011; 2013).

It is interesting to note that a couple of representatives from both student groups and The( )Space companies perceived that the possibility of strengthening the MATIX brand would be a motivation for the programme. The students and The( )Space company representatives saw the cooperation as an opportunity to build up reputation and attract future students, companies or even teachers but the MATIX coordinators did not mention anything about brand improvements or building up reputation as a motivation.

7.2 Benefits of the cooperation

All the three actors of The( )Space cooperation perceived that they benefitted from the established relations that they gained during the course of the cooperation. Only few of the respondents initially stated that their motivations for entering the cooperation were to establish these relations, which can be because it is was seen as a positive addition but not enough to engage. In contrast to our findings, Plewa et al. (2005) found that companies are motivated to engage in UBC to acquire contacts and access to networks but it was not stated as a reason for universities. The types of established relations were a bit different for the actors and will be more thoroughly discussed in their appropriate section.

7.2.1 Benefits of cooperation for companies

There are mainly three categories compiled from the respondents' answers that were perceived to be benefits for The( )Space companies deriving from the cooperation (see table 4). Two of them were more focused in the group of input for the companies who got new perspectives and creative ideas from cooperating with the students, which coincidently were two of the main motivations for them to engage in the project in the first place. Everyone involved in The( )Space seemed to perceive these two factors as the greatest benefits for the companies. It turned out that the partner company representatives also saw those two factors as the greatest benefits for them. Evidently, new perspective on business operations can help companies realize that there might be a need for change or to discover new ways of doing things. In a sense the companies gained access to the students as a sort of specialized consultancy where the companies tapped in to the fresh knowledge and perspectives of the students, this corresponds to what Lambert (2003) pointed out as an important benefit of UBC.

Table 4: Categories for the respondents' perception of what the companies benefitted from in the project.

Benefits of cooperation for companies		
Category	**Description**	**Respondents**
Perspectives	The students provided new perspectives on problems because of their age group and backgrounds	C#1, C#2, C#3, C#4, C#5, C#6 U#2 S#2, S#3, S#4, S#5 X#1
Ideas	Students provided fresh and creative ideas for the company to build on	C#1, C#2, C#3, C#4, C#5, C#6 U#2 S#2, S#3, S#4, S#5 X#1
Energy	The students came in and helped energize the firms	X#1
Established relations	The companies established relations with students, the university and some of the other companies	C#1, C#2, C#3, C#4, C#5 U#1 S#1, S#3, S#4, S#5, S#6 X#1
Investigated problems	The students came up with useful results that at least provided the companies with a good base to work from	C#2, C#5 U#1 S#1, S#3 X#1
Changed culture/mindset	The culture or mindset at the companies have been positively affected by the collaboration	C#6 U#1, U#2 S#4, S#5
Branding	The companies can use the relations for branding purposes	C#2, C#3 X#1
Knowledge for improvement	The new perspectives and ideas have helped the company to understand improvement areas to focus on	C#1
Learned about university environment	The company has learned more about the educational system and how it works	C#1
Contribute to society	The company has given back to society	C#3
	C#: 24, U#: 6, S#: 15, X#: 6	Number of unique answers: 51
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#		

The third main benefit for The( )Space companies deriving from the cooperation with both the students and the university was established relations although, interestingly, it

was not mentioned as a motivation for The( )Space companies to engage in the cooperation. Getting to know and being close to students is a chance for companies involved in UBC to spot and recruit talent (Lambert, 2003). Interestingly this was not something that the partner companies viewed as a benefit, which could indicate that they are not particularly looking for business administration students to become employees.

Even though all the companies were hoping for the students to investigate specific issues only two companies mentioned that their hopes had been met and that the investigations themselves were considered a benefit. As pointed out in existing literature, it is not surprising that the companies would value a research outcome in itself (Plewa et al., 2005), and as mentioned in limitations, some of the interviews were conducted early on in the cooperation. This indicates that not all the benefits were visible at the time of the interview. Nonetheless, one company stated outside of the interview that even though the students had not contributed with very much new value on the subject at hand, they had come up with similar answers to what the company itself had done, reassuring the company's initial assessment. Also, during the students' presentations The( )Space companies representatives stated that they were fairly satisfied considering everything.

The partner companies' representatives said that through working with the students they had discovered areas where they could really improve both in an operational way as well as regarding mindset of employees. This was something that The( )Space companies just barely mentioned as a benefit, which might be because of the different timespans of the cooperation. The students might be better able to have an impact on the company during a longer cooperation.

7.2.2 Benefits of cooperation for university and students

Our results indicate two major benefits for the students and two for the MATIX programme (see table 5). Almost all representatives perceived the students to have gained practical experience by working with large dynamic firms and seeing how they function. The partner company representatives also perceived this to be a major benefit for the students as well as that the students were able to develop their skills further. Students' skill development was also mentioned by all actors involved in The( )Space cooperation except for the students, who did not mention it as something that benefitted them. The reason that the students did not mention skill development could be because they, on the contrary from the cooperation with the partner companies, did not work very closely with The( )Space companies. Previous studies suggest that the lack of integration can inhibit skill transfer (Plewa et al., 2005; Plewa & Quester, 2007), which could be the reason for the students not mentioning skill development as a benefit. At the partner companies the students were highly involved in both operational and strategic decision-making.

As mentioned, a second benefit that the students experienced was the established relations with the firms, mainly for future employability reasons but also for networks

and contacts. Again, the partner companies did not mention this as a benefit for the students even though it is not uncommon that the students from the MATIX programme continue working with their partner companies after graduation. It can be a beneficial experience for students to create and share ideas with companies, and also preparing presentations (Afacan, 2013) but this was not something that the MATIX students expressed. This does not necessarily mean that they would not agree if posed the question, and we got the feeling that many of the students found it exciting to be working with these dynamic companies and further saw it as a chance to be creative.

Table 5: Categories for the respondents' perception of what the university and students benefitted from in the project.

Benefits of cooperation for university and students			
	Category	**Description**	**Respondents**
For students	Practical experience	The students got an insight to how a real firm works and its procedures, and gained practical experience	U#2 S#1, S#2, S#3, S#4, S#5, S#6 C#1, C#2, C#3, C#5, C#6
	Establish relations	The students networked and got in contact with possible future employers or business partners	U#1 S#1, S#2, S#3, S#5, S#6 C#1, C#4, C#5 X#1
	Develop skills	The students developed new skills from the cooperation	U#2 S#4 C#1, C#2, C#3, C#6 X#1
	Work with interesting companies	The students got to work with global companies and could learn how to deliver results in an industry setting	U#1 C#5, C#6
	Teamwork	The students learned from working in a group on a challenging project	U#2 S#1, S#4
	Deliver value	Deliver something of value was a reward in itself for the students	S#1, S#5
	Personal growth	The experience has helped the students to grow and	S#1
	Work experience (CV)	The project can give the students a stronger CV	S#5
	Contribute to society	The students were part of something bigger and contributed to society	X#1
For MATIX	Branding	The programme can use the collaboration to strenghten reputation and attract students	U#2 S#2, S#3, S#5, S#6 C#3, C#5
	Establish relations	The programme has established more relations with the business society	U#1, U#2 S#6 C#2, C#3, C#4, C#5
	High quality	Interesting case that have engaged students leading to a higher quality	S#5
	Low cost opportunity	The project was more or less ready, which saved resources	X#1
	Experience to improve	The programme can use the experience to improve courses and cases in the future	S#6
		U#: 8, S#: 25, C#: 20, X#: 4	Number of unique answers: 57
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#			

The MATIX programme also found that the established relations with the business community were beneficial, partly because it is part of the programme's duty to connect students with businesses. Interestingly, as mentioned in the motivation section above, the MATIX coordinators did not see branding as a motivation for engaging in the cooperation, while most other actors did. Nonetheless, the branding possibilities were seen as the second major benefit for the MATIX programme. This could mean that the coordinators realized during the project that they could use this cooperation with well-known firms in the society to build up their reputation and market the MATIX brand better. The partner companies also perceived branding and relations established with the business society as a benefit for the MATIX programme.

7.3 Obstacles in the cooperation

From the interviews with all the respondents it was evident that obstacles were perceived at different times in the cooperation. Therefore this section is split up to three phases; where the first phase relates to the actual initiation of the project (table 6), the second phase is when the project started and the actors began cooperating (table 7), and the third phase includes the obstacles that faced the actors during the project (table 8).

One issue that was never brought up, but is one of the usual major obstacles mentioned in UBC literature, was property rights (Lambert, 2003; Bruneel et al., 2010; Darabi & Clark, 2012; Plewa et al., 2005). This is most likely related to that the tasks of the cooperation were not especially sensitive and at an early stage of development. Although, there was one group of students that needed to sign a confidentiality agreement to work with their company because it regarded more sensitive information.

7.3.1. Obstacles in the initiation phase

In the first phase when Ola and Per were initiating the project and getting the MATIX programme as well as The( )Space companies involved, there seem to have been a couple of obstacles. In this phase the students were not involved so much so the obstacles mainly affected the university and the companies. The results indicate that right from the beginning there were some communication failures. The organizational differences between university and industry are in general difficult to manage and can instill failures in communication (Plewa et al., 2005). In this case, we got the feeling that the chain of communication was at fault. The companies were not in direct contact with the university and all information went through the intermediaries, which might have caused much of the initial miscommunication.

The project was unclear and therefore the university and the companies had difficulties understanding the project and what its aim was. What followed was that both the university and the companies had problems with planning and structuring the project for the students.

The MATIX coordinators stated that since the project was initiated quickly into the programme and especially since the project turned out to be bigger than expected, they were having troubles incorporating the project into the programme's curriculum. The

cooperation was initially meant to be included in one of the courses at the programme, which seemed fitting, but because of the lack of planning it became difficult and the inclusion became unclear. Most of the students group had the same to say because when they were introduced to the project they felt that the university was not communicating the specifics of the project to them effectively. They had difficulties understanding which courses it was connected to as well as how they were going to be graded for it. As has been pointed out as a common obstacle in existing literature, the practicality of the project was difficult to match with the academic values which can be derived to differing cultures and missions at universities and businesses (Lambert, 2003).

Table 6: Categories of the respondents' perception of obstacles occurring during the project's initiating phase.

First phase: Obstacles in project initiation		
Category	**Description**	**Respondents**
Hierarchy/Promoting	Difficulty with getting permission to run the project and to engage colleagues	C#6 X#1
Little planning & structure	Project was too unstructured and there had not been much planning either from university or company side	C#1, C#2, C#3 S#1, S#2, S#6 U#1, U#2 X#1
Miscommunication	There was communication failure between the actors who therefore understood the project differently	C#1, C#3, C#4 S#1, S#3, S#4, S#5, S#6 U#1, U#2 X#1
Unclear project	The project was not defined well enough so the university and companies did not understand it fully	C#3, C#6 S#1, S#3, S#4, S#5 U#1, U#2 X#1
Balance practice and academia	It was difficult to combine the practicality of the project and academic values of university	S#3, S#6 U#2 X#1
Communication/incorporation of project's part of programme	Difficulty incorporating the project with the programme or it was difficult to understand its fit to the curriculum	S#1, S#3, S#4, S#5, S#6 U#1, U#2
	C#: 9, S#: 19, U#: 9, X#: 5	Number of unique answers: 42
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#		

The results indicate that the project was initiated with very limited planning and that everyone involved at the time could have done much better regarding communicating to structure the project better. The time between actors getting involved and the actual start of the cooperation was very short and therefore time for planning and communicating was limited. It is often mentioned in literature that universities are bureaucratic and slow-moving, which impedes collaboration with industry (Darabi & Clark, 2012; Lambert, 2003). The MATIX programme did not appear to have this issue and jumped on the opportunity to join the cooperation, which bureaucracy in other cases might have prohibited.

7.3.2. Obstacles in the start-up phase

In the second phase when the students were meeting their companies for the first time and the cooperation was beginning all the student representatives said that there had

been an extensive mismatch in expectations. They said that what the companies were expecting was very different from what the university was expecting. Most representatives connect this to the lack of communication all the way in the beginning when Ola and Per were involving the MATIX programme as well as the companies. The great mismatch in expectations became clear when the students were first involved. They noticed that they were getting noticeably different information on how they should be working on the project, from the coordinators on the one hand, and from the companies on the other. The MATIX coordinators also mentioned this as a big obstacle for everyone involved. As mentioned in the results some of the companies had to change their focus completely because they were expecting something totally different from the cooperation. This resulted in that some of the assignments given to the students were unclear. The students therefore had a difficult time defining what to do, and how to do it. Even though there was only one company mentioning this as an obstacle, it was clear that most companies had the same feeling but connected it to other obstacles.

Table 7: Categories of the respondents' perception of obstacles occurring during the project's start-up phase.

Second phase: Obstacles at the start of project		
Category	**Description**	**Respondents**
Mismatch in expectations	The project differed from what was expected or communicated	C#1 S#1, S#2, S#3, S#4, S#5, S#6 U#1, U#2 X#1
Prestige/Lacking trust	Prestige at the company and lack of belief that the students could contribute	C#6 S#6
Unclear assignment	The task assigned to the students was difficult to understand	C#5, C#6 S#1, S#2, S#3, S#4, S#6 U#2 X#1
Size versus time	A mismatch in the size of the project and the amount of time allocated to it	C#1 S#3, S#4, S#5 U#1, U#2
	C#: 5, S#: 15, U#: 5, X#: 2	Number of unique answers: 27
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#		

The size of the whole project turned out to be bigger than initially anticipated by the MATIX coordinators and therefore the time available for the students to work on it was limited. It seems that the MATIX coordinators allocated for students to work on the project, was much less than the The( )Space companies were expecting. Some of the companies therefore had to reorganize their approach to the project because of this confusion.

It was interesting to see that in one of the cooperation an obstacle for the students was that the company was lacking trust to include them. This led to that information sharing was limited and the students felt like they were not included as much as they wanted. It often came down to that some of the workers at the company felt that their skills were superior and that the students would not be able to contribute with anything of value. Communication and information sharing can be inhibited from a lack of trust, which could derive from a lack of awareness about the expertise that students possess, which

in turn can create difficulties for cooperation (Lambert, 2003; Darabi & Clark, 2012; Duncan, 1974). Conversely, trust can be built with a good communication (Plewa et al., 2005).

7.3.3. Obstacles during the cooperation

In the third phase, which is during the cooperation, the major obstacle for most actors involved was time to work on the project. In existing literature, time difficulties are mentioned often as an obstacle to cooperation because universities and companies work with time in different ways (e.g. Plewa et al., 2005; Bruneel et al., 2010). In contrast to the literature, the university was in this case more constrained to exact deadlines and shows a difference between academic research and the educational context. For students, cooperation needs to be made part of a programme or courses and in general fit with the curriculum.

Table 8: Categories of the respondents' perception of obstacles occurring while the project was running.

Third phase: Obstacles during project		
Category	**Description**	**Respondents**
Time	It was difficult to find time to spend on the project or to meet. Often because of other tasks that also needed attendance	C#2, C#3, C#4 S#1, S#2, S#3, S#4, S#5, S#6 U#1, U#2 X#1
No overview of progress	Either the company or university did not get updates on how the project was going and there was no halfway report	C#5 S#2
Balance pressure on students	Difficulty knowing how much pressure to put on the students from either the university or the company side or from both	C#4 S#2, S#5 U#1 X#1
Little support from university	Not enough support from the university for the students	S#2, S#5
Little cooperation between groups	Not enough cooperation between the different students groups	S#2
Work in teams	Difficulties arising for the students from working in teams, often due to diverse student backgrounds or unstructured project	S#1, S#4, S#5, S#6 U#2
Communication	Lacking communication between the actors during the project leading to misunderstandings	C#5 S#1, S#4, S#5 X#1
Space & distance	Difficulties getting all the involved in the same room, or even the same city	C#3, C#5 S#3, S#5
	C#: 8, S#: 21, U#: 4, X#: 3	Number of unique answers: 36
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#, Project initiators: X#		

The students were in many cases overwhelmed by the grandeur of their task, which the students of Afacan's (2013) study also expressed. The university and companies are usually also under pressure from day-to-day activities (Darabi & Clark, 2012; Duncan, 1974), something that especially some of the companies in the cooperation articulated. For a couple of the companies it seemed as if the timing of the project became an obstacle because it was during an especially busy period, which was also the case for the students.

As mentioned before, the students had a lot of things to do besides the cooperation and the company representatives as well as the MATIX coordinators were busy with their work. This meant that often it was difficult for everyone to arrange meetings or to get people together in the same room. More specifically, there were two student groups and company collaborations where both sides expressed a difficulty for them to meet. Lambert (2003) states that proximity and access can be a necessity and that even though we can stay connected through other ways in this modern era, personal contact is still important. Regardless, most of the respondents said that the problem in distance could be overcome with the help of internet utilities but one representative still expressed that even though most issues can be overcome from a distance the personal contact is important to establish trust.

Some mentioned that there was a communication problem, either within the group or between actors. Therefore some of the student groups were dealing with internal conflicts and had problems working together in their group. There was especially one group that stated that too much focus lied on discussing opposing ideas within the group, which also was a major obstacle for the students in Afacan's (2013) study. A main problem for the student groups was to understand the assignment without all information and apply their knowledge to come with solutions together. This led to that many groups divided tasks among them and in many of the groups there were unofficial group leaders who stepped up. They did have problems to include all members of the groups because many lost their motivation in the confusion and some of the respondents claimed that the combination of vague tasks and the differing backgrounds of group members created unnecessary discussions. O'Brien & Hart (1999) found that for a student group to face a real life problem without all information can develop exactly these obstacles and the same solutions to overcome them. Although, obstacles found in O'Brien and Hart's study which did not did not seem to emerge for the MATIX students, were those related to structural issues.

Looking at the partner companies' obstacles in their cooperation with students shows the major difference between the two types of cooperation. The partner companies who were mentioning similar things regarding motivations and benefits had very little to complain about regarding the cooperation. There were some minor things that they mentioned, such as not being able to allocate enough time for the student. The reasons that one cooperation faced so many obstacles while the other faced only a few minor ones could mainly be explained by their differing nature regarding preparation and duration. On the one hand, the partner companies' cooperation is carried out during a much longer timespan, where planning and preparation is thorough between actors. While The( )Space cooperation, on the other hand, was initiated with short notice where there was a limited amount of communication and planning.

7.4 Drivers for university-business cooperation

Our respondents were very consistent in what they viewed to be drivers for successful university-business cooperation and we could easily categorize all the answers into

seven key drivers (see table 9). From literature we have seen that relational drivers often are considered to be of greatest importance (e.g. Davey et al., 2011; Plewa & Quester, 2007) and the relational drivers were also mentioned the most by our respondents. Five of our seven key drivers were relational and we further chose to categorize our remaining two as structural drivers. Davey et al. (2011) used business drivers as complement to relational drivers, something which we argue is not a fitting description of our drivers. The two structural drivers are both supportive in nature and come from initial structuring and planning, instead of the more commercial interest of business drivers. Although, the structural drivers are also relational in nature and refer to common goals and benefits but we deem their structural background to outweigh those relational factors.

Table 9: Categories of the respondents' perception of drivers for successful UBC.

Drivers for successful UBC			
	Category	**Description**	**Respondents**
Relational drivers	Engagement/activity	The participants need to be active in the cooperation.	C#1, C#2 S#4, S#5, S#6
	Commitment/dedication	The participants need to be dedicated to the cooperation and willing to invest time.	C#1, C#5 S#1, S#2, S#5
	Good communication	There needs to be a flow of good communication between the participants in the cooperation so that people are well-informed.	C#3, C#4 S#1, S#3
	Transparency/Trust	The participants need to have an honest communication and therethrough develop mutual trust.	C#2, C#5, C#6 S#2, S#5
	Set expectations/Mutual understanding	The participants need to initially communicate their expectations and needs in order to develop a mutual understanding and respect.	C#4, C#5 S#1, S#2, S#4, S#6 U#1
Structural drivers	Clear roadmap	The participants need to set common goals, have a plan on how to reach those goals and planned meetings along the way to follow the progress.	C#3, C#5 S#1, S#2, S#6 U#2
	Win-win situation	There needs to be visible mutual benefits for the participants in the cooperation.	C#1 S#3, S#6 U#2
		U#: 3, S#: 19, C#: 14	Number of unique answers: 36
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#			

There were no revolutionary findings regarding the drivers, however they do strengthen findings from earlier studies and provide some new aspects to them. Our respondents found that it is very important for all actors to talk through the cooperation beforehand. This initial communication is vital for visualizing the benefits and goals with the cooperation for all the actors. Mutual benefits and common goals are nothing new under the sun (e.g. Rakovska et al., 2014; Davey et al., 2011) but further defining these goals by structuring and creating a roadmap is seldom mentioned as a driver in UBC literature. The respondents meant that these initial discussions would help to set all the actors' expectations straight and develop a mutual understanding of each other's needs and capabilities. Also, Plewa et al. (2005) state that a two-way communication is needed to establish a mutual understanding. To develop this mutual understanding can be one of the most important drivers, not only because the participants know what they can expect and what is expected of them but also because it might create a huge barrier in the cooperation if they do not. From our findings we can derive that different

stakeholders suffer from this in different ways. It appears that the students, who are meant to carry out the tasks, suffer from too much pressure and unclear assignments, based on confusion from all parties. The issuer of the tasks will be more likely to be dissatisfied with the results and the relationship between all actors would render less trust for future cooperation. The better understanding that companies have of the university's offerings and value the more they will trust it and be able to build a strong and satisfactory relationship (Darabi & Clark, 2012; Plewa et al., 2005).

The representatives from the partner companies mentioned more or less all the same drivers for fruitful cooperation. Although, they did not mention that they perceive engagement and commitment as important drivers when it comes to cooperation with the students. It is safe to say that the partner companies are not hoping for lazy students that are not active in their work with the company, but it is possible that the fact that the cooperation stretches over a longer duration that they do not feel that there needs to be a constant work dedication coming from either side of the cooperation. They probably also are more aware of the fact that the students also have lectures and other assignments to work on.

7.5 Changes for improved cooperation

It is clear that respondents had the UBC drivers in mind when they were asked about what changes they could suggest for improved cooperation in the future (see table 10).

The results indicate that in general when it comes to cooperative ventures, such as The( )Space, there needs to be a high level of communication between all actors involved in the cooperation right from the beginning and throughout. As mentioned in the obstacles' section above, almost everyone involved perceived lack of communication to be one of the biggest obstacles. One major factor contributing to this lack of communication and misunderstanding between actors can possibly be traced to that all communication between The( )Space companies and the MATIX programme coordinators went through the initiators of the project, Ola and Per. The participants involved in the cooperation appreciated Ola's and Per's initiative and effort of arranging this whole project and connecting everyone together. Although, there was a common perception that the project would have been clearer if this communication channel between the MATIX programme and the companies would have been open.

Furthermore, the actors suggest that in cooperative ventures between the university and industry, the expectations from each actor have to be set right from the beginning in order to create a mutual understanding and establish common goals. The actors involved perceived that this had not been done to a satisfactory extent and they connect this to the miscommunication all the way from the beginning when Ola and Per were involving the MATIX programme as well as the companies. The mutual understanding is a building stone to a strong and satisfactory relationship, and Plewa et al., (2005) suggest that there needs to be a continuous reciprocal communication and exchange of information for creation of mutual understanding.

Table 10: Categories of the respondents' proposed changes for improved future cooperation for both The( )Space companies and the MATIX programme.

Changes for improved cooperation			
Category	**Description**	**For The( )Space companies**	**For the MATIX programme**
Communication	Establish transparent communication channels between actors throughout the cooperative venture	C#3, C#4, C#6 S#3, S#6 U#2	C#1, C#2, C#3, C#4 S#2, S#3, S#6 U#2
Expectations/mutual understanding	Set expectations right from the beginning to create a mutual understanding	C#4 S#3, S#6	C#3, C#4, C#6 S#3, S#5 U#1
Planning	Preparation before engaging in cooperative venture leads to better defined tasks and overview	C#3, C#4, C#6 S#2, S#4	C#1, C#3, C#5 S#3 U#1
Commitment	The companies need to be active in allocating resources, e.g. time and manpower for the students	C#2, C#5, C#6 S#2, S#3, S#5	-
Clear integration	The university has to make it clear how cooperative ventures are connected to individual courses or the whole curriculum	-	S#1, S#3, S#4, S#5 U#2
Trust	Establish trust in the students by sharing information and letting them in	S#5, S#6	-
	C#: 20, S#: 21, U#: 5	Number of unique answers: 46	
The( )Space companies: C#, MATIX representatives: U#, Student groups: S#			

The next suggestion relates to the two above, from the beginning of cooperation there needs to be good planning so that each actor can be better prepared when they enter the cooperation. They indicate that this would lead to better structured information sharing between actors and clearer tasks assigned to the students.

The actors indicated that a change needed mainly for the company side of The( )Space cooperation, is more commitment. The students felt that it would have been beneficial if the companies would have invested more time for working together with the students on the project. Obviously people in business are often very busy, but the students, as well as some of The( )Space company representatives, suggested that by involving more people from the companies they could share the workload while at the same time being more available for the students. Plewa and Quester (2008) also claimed that the more engaged people that are involved the more they will be committed and this commitment is also a strong indicator that the cooperation will be renewed.

For the university in particular the students and a MATIX representative stated the importance of making it clear how cooperative ventures or projects like these are integrated in the programme, curriculum or the courses. The students were confused regarding this project because it was not properly fitted to their schedule or courses and it was not communicated to them into which course the project was integrated. In this sense some of the students felt a lack of support coming from the university. Earlier studies suggest that these types of collaboration and practical experiences need to be integrated into the curriculum and be made visible for the students (Priddle et al., 2015; Afacan, 2013).

Our results indicate that the partner companies learn from their cooperation with the students and for those who continue being a partner, the cooperation becomes both more efficient and effective each time.

8. Conclusion

The purpose of this study was to, (i) assist the initiators of The( )Space with the development and definition of The( )Space concept, (ii) increase understanding of UBC for the participants' of the study, and (iii) contribute to research on UBC. In order to fulfill this purpose a case study was performed on cooperation between students from the MATIX programme and companies in the society. To understand how the participants perceive their involvement in the cooperation from all angles, semi-structured interviews were conducted. Four research questions were stated in the beginning and the goal with this conclusion chapter is to answer the issues originally raised with those questions.

RQ1: *What were the perceived motivations for the actors involved to engage in The( )Space cooperation?*

The answers regarding motivations for engaging were, in most cases, consistent for the different actors, where a few big themes were dominating.

For The( )Space companies it was an interesting opportunity to get an outside perspective and ideas on a problem or a project that they wanted to investigate further. For the university it was a chance to offer the students interesting, dynamic and well known firms to work with. The programme coordinators saw the cooperation as a way to further their cause of offering students practical experience where they can apply their academic knowledge in reality.

RQ2: *What were the perceived benefits deriving from The( )Space cooperation for the actors involved?*

Again, as with motivations, a few beneficial factors were the dominating responses.

The( )Space companies benefitted from getting new perspectives and ideas on their operations, which was in line with their motivations and would imply that they got what they initially sought. One major benefit deriving from the cooperation and mentioned by all actors was the relations established with the other actors involved in the cooperation. Furthermore, the practical experience that students got from the cooperation was a benefit that they valued greatly.

The perceived benefits were more aligned between the actors than their motivations for engaging in the cooperation in the first place. It is clear that the student perspective and creativity is something that companies can benefit from and that seems to be valued by all actors involved.

RQ3: *What were the perceived obstacles of The( )Space cooperation for the actors involved?*

As mentioned earlier, the cooperation was split up to three phases and obstacles perceived differed between those phases.

In the initiation phase the biggest obstacles derived from miscommunication between actors, which made the project unclear and difficult to structure. In the cooperation

start-up phase, the miscommunication and lack of structure in the first phase resulted in a mismatch in expectations between all actors, as well as the assignments given to the students were unclear and broad. During the cooperation, the lack of time available for working on the project, both for students and most of the companies, was an obstacle. The lack of communication between all actors was still evident in this phase and some student groups struggled with teamwork, often because of arguments deriving from the initial unclear communication.

Too little planning of the cooperation and too much miscommunication between actors resulted in the students taking the worst hit of frustration since they were caught in the middle and were the ones carried out most of the work.

RQ4: *How do the actors involved in The( )Space cooperation perceive that the process of collaboration could be more effective?*

The combination of what the respondents perceived as the key drivers of UBC and what they suggested as changes for improved cooperation gave the basis for how the collaboration could become more effective in the future.

The key word of a more efficient cooperation is communication. Opening up the communication channels between all actors would help aligning expectations and creating mutual understanding, which in turn facilitates planning and structuring of the whole cooperation. Establishing clear communication channels could further help building up trust between the actors and strengthen the level of commitment and engagement. More specifically, the MATIX programme should to integrate the cooperation more into the curriculum and make its fit visible for the students.

8.1 Managerial implications

After having closely investigated all sides of the cooperation there are a few things that we would like to suggest to actors with the intent to engage in similar kinds of cooperation. Since this is only a case study of a specific cooperation, no generalization can be made, but our suggestions could provide a rough guideline. In order to create a win-win situation in the cooperation we propose a few factors that would need to be taken into consideration, both before and during cooperation. Before, a clear communication channel should be established between everyone involved so that those involved have a mutual understanding of what to expect from each other. Therefore, we suggest setting up meetings between those involved where focus points could be discussed and personal contact established. During the cooperation the companies should be committed to the students, which we suggest that they do by allocating more resources to them, such as time and available personnel.

For the university, we believe that it is important to integrate the cooperation into the curriculum in a clear and visible way. Cooperative ventures should be tailored to fit the courses, which the students should be able to use for working on the cooperation, e.g. as a source of supporting literature. These ventures should also fit with the companies' often very busy schedule, so that the companies in fact have the ability to commit to the

cooperation. Furthermore, we suggest that this integration is duly communicated to the students so that their involvement and expected learning outcomes are clearly visible to them. We believe that the integration also would help with planning the overview of the curriculum, and therefore the pressure on the students is balanced out over the whole academic year.

8.2 Suggestions for further research

It would be interesting to investigate further, with a more quantitative approach, other types of university-business cooperation with a broader involvement of respondents. Students from various academic disciplines, more people from the industry side, as well as from the universities, could be involved and asked similar questions as in this study about motivations, benefits, obstacles and key drivers of UBC. By taking a more quantitative approach to this kind of research it would be easier to get more people involved and it would be possible to rank the factors being investigated with more accuracy.

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Appendix A: Google Scholar search results

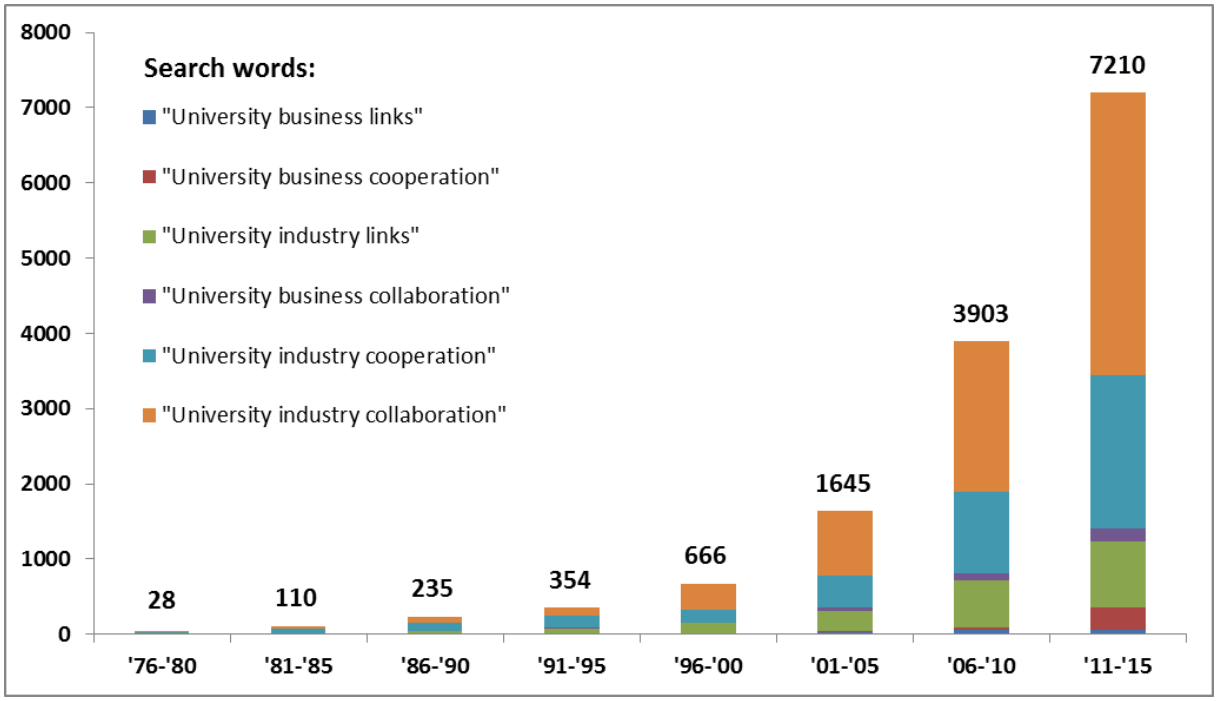

Figure 2: Number of search results from Google Scholar for the years 1976-2015. (20.05.2015)

Appendix B: An example of the interview schedule

Interview schedule for The( )Space companies:

First of all we would like to thank you for taking the time to meet us here and answer our questions. The objective with this interview is to help us understand the company's standpoint on this specific cooperation between the students from the MATIX programme and the six companies involved in the cooperation. The goal is to identify the motives, benefits and obstacles of this specific cooperation from the perspectives of the company, the students and the university. We aim to be able to use the information from this interview to advise your company regarding future cooperative projects by pointing out the obvious, and less obvious, benefits as well as obstacles of continuous cooperation with universities. We would like to ask for your permission to record this interview. We would also like to ask for your permission to use the company's name and the information you tell us, in our report.

1. Can you start with telling us your name, your position within the company and your role within this specific cooperation.
2. How long have you been working here at the company?
3. Can you describe the task that you are working on with the students?
    a. Time allocated to the project?
    b. How do you work with the students?
4. What were your motivations for engaging in this specific cooperation with the university and the students?
    a. From the university's perspective, what do you think the motivations for engaging in this specific cooperation with you were?
5. What do you consider the (major) benefits of this specific cooperation with the university and the students to be?
    a. From the university's perspective, what do you consider the (major) benefits of this cooperation to be?
    b. From the student's perspective, what do you consider the (major) benefits of this cooperation to be?
6. What have been the (major) obstacles of this specific cooperation with the university and the students?
    a. From the university's perspective, what do you consider the (major) obstacles of this specific cooperation to be?
    b. From the students perspective, what do you consider the (major) obstacles of this specific cooperation to be?
7. Which are the key drivers of fruitful and long lasting university–business cooperation, according to you?
8. Is there something that you think that your company could change that would make the cooperation work better in the future?
    a. Is there something that you think that the university could change that would make the cooperation work better in the future?
9. Have you experienced any differences between engaging in this specific cooperation and other university-business cooperation projects prior to this one?
10. How have your motivations changed regarding future cooperation?
11. Are there any other important aspects / questions that you would like to comment on?